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EDITORIAL

A TULANE UNIT.

After several months of uncertainty, as to the purposes and as to the status for service of the Unit, the Base Hospital (No. 24) organized as a representative Tulane group is ready.

Before war was declared this Unit was enrolled by Dr. Rudolph Matas, as its Acting Director, and included most of the Tulane Faculty and a large number of the student body. It is worthy of notice that the entire Sophomore Class volunteered for any kind of service and the Freshman Class began organizing an Ambulance Company. The majority of the Junior Class had already been signed up in the Red Cross Unit.

The entire plan had to be revised when the Council of National

Defense, coördinated with the Federal service, issued the most urgent appeal to all medical schools to hold students at their classes and to conserve the efficiency of the faculties my maintaining a working-teaching staff.

When it was apparent that the organizer and Acting Director of the Unit, Dr. Matas, would be unable himself to go to France, the Director General of the American Red Cross named Dr. John B. Elliott, Jr., head of the Department of Medicine at Tulane, as the Director, early in June. The Unit had already been practically completed in its medical and surgical personnel, and at this time is nearly ready to go and is awaiting orders.

There are already many medical graduates of Tulane in the Army Corps and in the Medical Reserve Corps, and more joining all the time. When the list is complete and the forces in France, Tulane may be the slogan on many fields.

In reviewing this particular endeavor of Tulane University it may be becoming to refer to this evidence of a duty to the community this institution represents. There may be pride among Tulanians at the thought that the New Orleans Unit will go, the first from the far South, carrying the honor of the city, State and of the Southland, and that the Unit goes headed by some of the best of the Faculty of the School of Medicine, which for nearly a century has built a foundation of which the City of New Orleans itself may be proud.

When the call comes, may the way of the Tulane Unit be in the lines of service, duty, and honor, and let our hopes for their success and their safe return be fruitful.

THE DUTY OF THE DOCTOR IN THE MEDICAL RESERVE CORPS.

At the request of the New Orleans Examining Board for the Reserve Corps, we gladly publish the following:

1. The local Board is prepared to examine candidates for the Medical Officers' Reserve Corps and candidates for the Dental Reserve Corps. Applications should be made to Major Isadore Dyer, M. O. R. C., postoffice box 770, New Orleans, La., and necessary forms and instructions will be supplied promptly.

2. All medical practitioners registered under the selective draft

are advised to apply for the Medical Officers' Reserve Corps. Otherwise, if drawn for service, they may be detailed to positions with the Hospital Corps as non-commissioned officers, or even as privates. If successful as candidates for the Reserve Corps, they are commissioned with the rank of First Lieutenant, with a pay of $2,000 a year, and will be detailed to training camps for medical officers as soon as their commissions become effective. After three months of training they will be asigned to active duty. Pay begins as soon as they are detailed to the training camps. If exceptional aptitude and efficiency are shown at the training camps after three months of training there may be prompt increase in rank.

3. Other physicians under the age of forty should consider the duty of service to the country at this time. Twenty-five thousand medical men will be needed. The sooner they fall in line, the easier the task of the War Department will be. Up to June 1 only about 2,200 commmissions to medical officers had been issued and accepted. In other words, less than ten per cent of the required number had qualified.

It may become necessary to use military measures of conscription to get the necessary number of medical men. As yet, the medical profession does not seem to be awake to the need of medical officers or to the duty of the medical men to serve. Men of all other professions have volunteered by the tens of thousands. Medical men cannot afford to have their profession classified among the slackers.

No medical man with wholly dependent families is expected to go into the Reserve Corps. All single men, or men with no such obligations, under the age of forty, or even fifty, are expected and should respond before steps are taken to register them for service.

At the present rate of application it will take nearly four years for the needed medical personnel. The full number should be made up within six months.

If you are eligible you should act NOW.

HOW OLD ARE YOU?

The Department of Commerce propounded this question on June 5: How many of those to be registered for the selective draft could *prove* their ages? How many actually produced certificates of birth registration?

No more timely argument could be presented for a proper birth registration, and the object-lesson should be enough to inculcate wisdom, and consequent action, in those communities now so negligent of this matter.

The discussion in the bulletin is so pertinent we believe it important to quote largely:

> Never before has the United States Government been so interested in knowing the exact ages of the young men of the land. Never before has the public mind been so ready to grasp the great importance of birth registration.
>
> In ordinary times the continual demands upon our attention, first by one problem and then by another, easily explain the sidetracking in many States of the problem of **complete birth registration.** It is not because the people believe birth registration unimportant, but the problem has simply been crowded to one side.
>
> When the story is told of the American arrested in London as a German spy, unable to obtain a birth certificate because his birth had never been recorded and because the doctor had died, but finally saved by the discovery of an old letter which told of his birth, the people grasp the point and agree that births should be registered; but, as the story relates to somebody far away, and probably never heard of before, the the point is soon forgotten and no wave of strong public opinion is really started. So, too, the statemnts that birth records are needed to prove men of voting age, to establish pensions, to establish rights of inheritance, and to determine who is entitled to the protection of our flag—these statements are too apt to be treated as old axioms which call for no immediate reform.
>
> The need for complete birth registration is recognized, but the inertia of the people prevails. Thus, in ordinary times, the problems of civilization are settled slowly, but not so in times of war or after great catastrophes. Then the bitter experience brings quick results.
>
> The city devastated by fire is so rebuilt as to guard against a second conflagration. The terrible loss of life which follows overloading an excursion steamer results in more stringent laws and in greater safety for travelers. And to-day, this **war call** for the registration of our young men brings home the need of birth records to every community in the United States.
>
> **How old are you?** Can you prove that you are under 21 or over 31, or must you be suspected of having falsified your age? Perhaps a fond mother, to save her son from the trenches, may swear that he is below the age limit; perhaps, years later, proof will be found this man should have registered; imagine his chagrin at not having done his part in the war. Perhaps there are slackers who, in the absence of birth records, may be able to shirk registration. Surely, on this day the need of birth registration is evident to all.
>
> May we not hope that this call for the registration of all men between the ages of 21 and 31 will awaken the people from their lethargy and lead at once to this forward step in our civilization—the **registration of every birth?**

ORIGINAL ARTICLES

(No paper published or to be published in any other medical journal will be accepted for this department. All papers must be in the hands of the Editors on the tenth day of the month preceding that in which they are expected to appear. Reprints may be had at reasonable rates if a WRITTEN order for the same accompany the paper.)

NOTES ON CLINICAL OBSERVATIONS AND REACTIONS IN LEPROSY.

By JAMES A. HONEIJ, M. D., New Haven, Conn.

The purpose of this paper is to record such observations and reactions in leprosy as I have not previously reported and which may be of some value to observers elsewhere.

Initial Lesion or Symptom.

In regard to the question of the initial lesion or symptom in leprosy, the following were first noticed by the patients who have been under treatment: Small nodule on right upper eyelid accompanied by some redness of the lid; pain in hands, with swelling; less sensation to touch in left lower leg than right; swelling of left hand; pain in feet, with slight swelling; small nodule on right shin; stuffiness in nose, with difficulty in breathing; loss of sensation in both hands; pain in right foot and swelling; darkening color of skin; indefinite pains and tired feeling; discolored areas on legs; small hard nodule, left ankle, with occasional swelling of foot; small nodular swelling left side of nose and forehead. In one case symptoms confused with syphilis, and in two cases no history of symptoms obtainable. Pain and swelling and the appearance of a small nodule occurred, therefore, in four cases, being the first symptoms and lesions noticed.

In no single instance in these cases is there any suggestion of the original mode of infection.

Occupation and Infection.

Regarding the possible infection from the occupation in which the patients were engaged, no information of any value can be obtained. There is one brushmaker, one leather-worker, three laundrymen, one cook, one dishwasher, two laborers, one gardener, one clerk, one traveling salesman, two housewives, one domestic, one teacher, one student, and one woman, a public character, and, just lately a sailor.

Heredity.

As to so-called heredity taints, the disease occurred only in the immediate family of two cases—a Greek, who has for three generations had leprosy in his family, and another, a native of one of the Portuguese islands, who has the disease only in his immediate family.

Predisposing Diseases.

Syphilis has been considered in the past to have some bearing on the incidence of leprosy, and tuberculosis has also been thought to bear a close relationship. Among the patients here, five have had syphilis, none tuberculosis, five smallpox, two gonorrhea, two malaria, four "fever," two measles, and two chicken pox.

Incubation Period.

Absolutely no evidence regarding the incubation period is obtainable. Various periods have elapsed from the time the first signs were noticed by the patient to the time of his apprehension; that is to say, from the time when the signs were apparently sufficiently noticeable for diagnosis by the hospital physician. Seven years was the longest and one year the shortest time that had elapsed between above-stated periods. The average was two years and seven months. If it is presumed that the same period was necessary for the development of the first lesion from the time of initial infection, it would give a period of five years and two months, agreeing fairly well with the opinion expressed abroad that the incubation period is about eight years.

Scalp Lesions: Lesions of the scalp—contrary to the general belief—do occur. Ulcers occurred in four patients, and in two patients fairly frequently. The ulcers healed readily, but with resulting loss of hair.

Oral Cavity: The oral cavity is very early affected. In none of the cases, even in the cases with signs barely diagnostic of leprosy, has the palate failed to show some inflammation and ulceration, usually situated on the sides of the raphe line, close to the uvula. The structures of the throat around the fauces have not been spared, and, although some cases are entirely healed, all the structures have at some time during the course of the disease been involved. In some of the healed cases there has been total destruction of the pillars and contiguous tissue, giving a smooth, cave-like opening appearance to the throat.

The tongue in some of the cases showed marked hypertrophy of the raphe and papillæ, with an increased depression of the groove. There is apparently little, if any, change of the gums or teeth.

Laryngeal Structures: The laryngeal structures, both the cartilage, mucous and submucous tissues, are attacked in most cases. In the nodular cases practically no change is noticed in the voice until ulcerative processes begin. In three cases, which later succumbed to the disease, the larynx was so much affected that it was often impossible to understand the speech of the patients. In one case death was partially due to suffocation by spasm on account of the extensive ulceration of the larynx and upper part of trachea. Of the sixteen nodular cases, the larynx was markedly affected in six patients, who died; of the remaining ten, five are fairly seriously affected and the remaining five not at all, though two of them are advanced cases. In only two cases, apparently, is the trachea attacked, and then only in its upper third. The lungs in none of these cases are affected by leprosy.

Intestinal Canal: The esophagus, from evidence obtained by autopsy, showed no change. The stomach, excepting for the common complaint of indigestion, is negative. Inflammation and ulceration of the intestines, evinced by marked diarrhea and the recovery of the bacillus from the stools, was supported by autopsy. Diarrhea has been severe and constant in six cases, but common only in the advanced stages of the disease. Constipation in almost all the patients has proved difficult of treatment. Prolapsus recti, hemorrhoids, and incontinence of feces have been observed. Stomach and intestinal pains are uncommon. The appetite varies and is wholly dependent on the general condition of the patient; in most cases, however, the appetite is good.

Circulation: Thickening of the walls of arteries is apparently not increased, and I am inclined to believe that, on the contrary, is lessened and the vessels less palpable than in normal individuals. The blood pressure was high in only two cases, being 190 and 210. The general range was 140 to 170; this was considered normal for the individual patients. The examination of the blood gave the following approximate results: The average hemoglobin was 69 per cent in 1913 and 70 per cent in 1915. The arterial blood pressure was below 140 in ten cases, in one 150, in one 170, and in one 200, and not determined in three cases.

Table No. 1,

EXAMINATION OF THE BLOOD.

NAME.	L. P.	S. G.	W. G.	F. B.	M. M.	M. G.	Y. T.	I. U.	L. D.	M. C.	H. K.
Type of Disease.....	Nodular	Nodular	Nod.-mac.	Nod.-ulc.	Anesthe.	Nod.-ulc.	Nod.-ulc.	Nod.-ulc.	Nod.-Mac.	Nodular	Nodular
Stage of Disease.....	Advanced	Advanced	Early	Advanced	Frly. adv.	Advanced	Advanced	Advanced	Advanced	Frly. early	Early
Hg.	75%	50%	80%	65%	80%	65%	65%	60%	75%	75%	80%
No. Red C.....	3,608,000	4,062,000	4,608,00	4,056,000	5,944,000	4,968,000	5,472,000	3,432,000	5,360,000	4,448,000	6,040,000
No. White C.....	6,600	4,600	3,400	8,000	4,400	6,000	4,600	4,867	6,000	4,800	5,400
Small Monos	5.09%	0.04%	16.74%	10.98%	8.51%	1. 5%	21.03%	4.64%	4.26%	3.92%	2.71%
Large Monos	30.09%	31.83%	31.67%	7.45%	24.01%	29.81%	15.51%	12.65%	44.95%	36.78%	24.03%
Trans.	15.27%	3.26%	....	0.078%	1.21%	2. 6%	....	0.387%	....	....	1.93%
Eosino.	2.95%	0. 8%	3.16%	6.27%	3.64%	1. 8%	1.37%	1.26%	3.48%	1.42%	1.93%
Neutro.	42.85%	63.26%	47.96%	73.72%	62.31%	64.15%	62.06%	81.43%	42.63%	57.85%	69.37%
Basoph.	2.95%	0.04%	0. 4%	0.0039%	....	....	....	0.387%	....	....	....
Other Cells	2 Myelocyts 1 Mast	2 Myelocyts 1 Normoblast	1 Myelocyt 1 Mast	1 Mast	1 Mycloeyt	3 Myelocyts	2 Myelocyts	2 Myelocyts 1 Mast.	I Mast.	1 Myelocyt	3 Myelocyts
Condition of Red C...	....	Normal	Normal	Sl. Achrom. and Poikiloc.	Normal	Achromia Sl. Poikiloc.	Sl. Achrom.	Sl. Achrom.	Normal	Sl. Achrom.	Normal
No. Platelets	Large No.	....	....	Great No.	Large No.	....	Great many	Many	....	....	Many
Condition of White C..	Sizes vary	Many large	....	....	....	....		Macrocytosis	....	....	....

Reflexes, Orbit: The reflexes—knee-jerks—are exaggerated in all cases.

Inflammation of the orbital tissues is noticed in most of the fairly advanced cases. Conjunctivitis appears fairly early, followed frequently by phlyctenular conjunctivitis. Total loss of sight occurred in three cases; total loss of sight in one eye in one case. Loss of sight is extremely gradual.

Plugging of the tear ducts occurred in one case.

Table No. 2.

EXAMINATION OF THE EYES.

NAME.	TYPE OF DISEASE.	STAGE.	DIAGNOSIS.
F. B.	Nod.-ulc.	Advanced	Presbyopia
I. B.	Mixed	Advanced	Epiphora
L. D.	Mixed	Advanced	Presbyopia
H. K.	Nodular	Early	Mixed astigmatism and myopia
F. P.	Nod.-ulc.	Advanced	Light perception only
W. Q.	Nodular	Early	Phlyctenular conjunctivitis

Special Sense Functions: Inflammation and destruction of the tissues of the nose is well known. The loss of smell occurred in only one case. This fact, considering the severe tissue changes, is quite remarkable. The taste is not impaired; in no single case, notwithstanding ulceration and destruction of tissues and hypertrophy of papillæ and rugæ, was there noticed the lack or diminution of taste. Salty and sour articles are apt to cause unpleasant sensations; the taste for sweet articles was diminished in one case.

Urine: The examination of the urine gave interesting results. Polyuria is evident in most cases and with fairly high specific gravity. Bacilluria occurs in a number of cases; percentages are given in the accompanying chart. Pyuria and hematuria occurred a few times. Solids were increased in all cases. Most of these changes occurred only in the very advanced cases. Cystitis was troublesome in four cases; incontinence of urine in three cases; retention of urine in three cases.

Table No. 2.

DISEASE OF UPPER AIR PASSAGES AND AFFECTION OF SPECIAL SENSES.

Type of Case.	Nod.	Nod.	? Anes.	Nod.	Nod.	Nod.	Nod.	? Anes.	Nod.	Nod.	Nod.	? Mix'd	Nod.	Nod.	Nod.	Nod.	Nod.	Nod.
Nasal M. Membrane...	+	+	Sl.	+	+	+	+	V Sl.	+	+	Sl.	+	+	+	+	+	+	+
Smell Impaired.....	0	+	0	0	0	0	0	0	0	0	0	0	Sl.	0	Sl.	0	0	0
Uulcer of Lips.....	0	0	0	0	0	+	+	0	0	+	0	+	+	0	+	0	0	0
Uulcer of Mouth.....	0	0	Sl.	+	0	+	+	0	+	+	Sl.	+	+	+	+	+	+	+
Uulcer of Tongue.....	0	+	0	0	0	Sl.	+	0	+	+	0	+	0	0	+	0	0	0
Taste Impaired.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ulcer of Throat.....	+	+	Sl.	+	+	+	+	0	+	+	V Sl.	+	+	+	+	+	+	+
Hoarseness.....	0	+	0	0	Sl.	+	0	0	Sl.	+	0	+	+	+	+	Sl.	0	Sl.

Name.																		
S. G.	+	+	Sl.	+	+	+	+	V Sl.	+	+	Sl.	+	+	+	+	+	+	+
I. B.	0	+	0	0	0	0	0	0	0	0	0	0	Sl.	0	Sl.	0	0	0
L. P.	0	0	0	0	0	+	+	0	0	+	0	+	+	0	+	0	0	0
F. B.	0	0	Sl.	+	0	+	+	0	+	+	Sl.	+	+	+	+	+	+	+
M. M.	0	+	0	0	0	Sl.	+	0	+	+	0	+	0	0	+	0	0	0
F. P.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. G.	+	+	Sl.	+	+	+	+	0	+	+	V Sl.	+	+	+	+	+	+	+
L. D.	0	+	0	0	Sl.	+	0	0	Sl.	+	0	+	+	+	+	Sl.	0	Sl.
H. C.	+	+	Sl.	+	+	+	+	V Sl.	+	+	Sl.	+	+	+	+	+	+	+
Y. T.	0	+	0	0	0	0	0	0	0	0	0	0	Sl.	0	Sl.	0	0	0
M. C.	0	0	0	0	0	+	+	0	0	+	0	+	+	0	+	0	0	0
W. Q.	0	0	Sl.	+	0	+	+	0	+	+	Sl.	+	+	+	+	+	+	+
A. T.	0	+	0	0	0	Sl.	+	0	+	+	0	+	0	0	+	0	0	0
I. U.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H. K.	+	+	Sl.	+	+	+	+	0	+	+	V Sl.	+	+	+	+	+	+	+

Table No. 4.

EXAMINATION OF URINE, SEDIMENT, ETC.

NAME.	Quantity 24 Hours.	Quantity Day.	Quantity Night.	Spec. Gr.	REACTION.	COLOR.	ODOR.	TURBIDITY.	ALBUMIN.
S. G.	3250 c.c.	1500	1750	1012	Acid	L. straw	Mouse	Slight	Sl. p. tr.
I. B.	2550 c.c.	1500	1050	1018	Acid	Normal	Urinal	Slight	Present
L. P.	1500 c.c.	500	1000	1018	Acid	Light yellow	Sweetish vegetable	Slight	Present
F. B.	1050 c.c.	550	500	1016	Sl. Alk.	L. straw	Ammoniacal	Slight	Present
M. M.	2500 c.c.	1500	1000	1022	Sl. Acid	Normal	Sweetish vegetable	No	Present
F. P.	1150 c.c.	600	550	1011	Sl. Acid	Dark sherry	No	No	Present
M. G.	2200 c.c.	600	1600	1014	Sl. Acid	Pale straw	Slight	Slight	Present
L. D.	2450 c.c.	1400	1050	1022	Acid	Dark sherry	Urinal	No	Present
H. C.	1040 c.c.	520	520	1026	Acid	Pale yellow	Ammoniacal	Slight	Present
Y. T.	2500 c.c.	1500	1000	1022	Sl. Acid	Straw	Sl. urin	Cloudy	Present
M. C.	1120 c.c.	600	520	1021	Sl. Acid	Sherry	Ammoniacal	No	Present
W. Q.	2100 c.c.	540	1600	1014	Acid	Pale straw	Sl. urin	Slight	Present
A. T.	2000 c.c.	500	1500	1026	Sl. Acid	Amber	Sweetish vegetable	Slight	Present
I. U.	2200 c.c.	1200	1000	1021	Acid	Pale yellow	Ammoniacal	No	Present
H. K.	1740 c.c.	1040	700	1018	Sl. Acid	L. amber	None	Cloudy	Sl. p. tr.

Genitalia: Ulcers of the penis, especially surrounding the urethral opening, are not uncommon. Urethral ulcers occurred in three cases. Partial destruction of tissue occurred in only one case in an advanced stage. Orchitis is a fairly frequent accompaniment of leprosy.

Sterility: Sterility is present in the large majority of cases, but not in the early stages.

Catamenia: In the female patients menstruation is normal, the periods of menstruation slightly decreased.

Mastitis: Mastitis occurred in one case.

Bone Changes: Bone changes occurred in all the cases, as especially shown by Rœntgenograms. Just how early these changes occur has as yet not been determined, but a study is being made, the results of which will be reported later.

Body Lesions: Lesions occurring on the body usually appear on the extensor surfaces first; in the case of lesions elsewhere, such as on the face, nose, cheeks, lips and ears, there is a more irregular and constant affection of these parts. The abdomen and back never developed open lesions. A table is presented showing the types of lesions.

Table No. 5.

A RECORD OF LESIONS OCCURRING IN EACH PATIENT DURING THE THREE YEARS.

Types of Disease.	Nod.	Nod.	? Anes	Nod.	Nod.	Nod.	Nod.	? Anes	Nod.	Nod.	Nod.	?Mix'd	Nod.	Nod.	Nod.	Nod.	Nod.	Nod.
Condition.....	Adv.	Adv.	Good	Fair	Fair	Adv.	Fair	Good	Adv.	Adv.	Fair	Adv.	Adv.	Adv.	Adv.	Fair	Good	Adv.
Pigmentation.....	0	Sl.	+	+	Sl.	+	Sl.	0	Sl.	+	Sl.	+	+	Sl.	V. Sl.	Sl.	Sl.	0
Anesthesia.....	0	Sl.	+	V. Sl.	Sl.	+	0	+	0	+	0	+	V. Sl	Sl.	Hyper.	0	Sl.	0
Pains.....	Sl. Ind.	+	0	0	+	+	0	0	Sl.	+	0	Ind.	Sl.	Sl.	+	+	Sl.	Sl
Swelling or Enlargement.....	0	+	0	0	+	+	Sl.	0	+	+	0	+	+	Sl.	+	+	0	Sl
Induration.....	Sl.	+	0	Sl.	+	+	+	0	+	+	0	+	+	+	+	+	Sl.	+
Nodules.....	+	+	0	+	+	+	Sl.	0	+	+	+	+	+	+	+	+	+	+
Enlarged Glands...	+	+	0	+	+	+	+	0	+	+	+	+	+	+	+	+	+	+
Ulcers.....	+	+	0	+	+	+	+	0	+	+	+	+	+	+	+	+	0	+
Blebs.....	0	+	0	+	0	+	0	+	+	0	+	0	0	0	0	+	0	0
Cicatrices.....	0	+	0	0	+	+	0	0	+	+	0	0	+	+	+	0	+	+
Disfiguration.....	Face	Face	Hands	Sl. Face Hands	Feet	Face Hands Feet	Hands	Hands	Face Hands Feet	Face Hands Feet	0	Face Hands Feet	Face Hands Feet	Sl. Face	Face Hands Feet	0	0	Face
Loss of Eyebrows...	Sl.	Sl.	0	0	+	+	0	0	+	+	0	+	+	Sl.	+	Sl.	Sl.	+
Leoniasis.....	0	0	0	0	0	+	0	0	+	0	0	+	0	0	0	0	0	0

Life Period: In all the cases of leprosy that have been apprehended and isolated, the lesions have always been well developed and must be taken into account when considering the length of life from the time of detention up to the time of death, or in the case of those still alive, up to December, 1915. The age of the patient at time of detention and first symptoms will affect the "life period" figures. Two patients of seventy years of age will have in all respects a shorter life, provided the form of the disease is the same, than those of a younger age where the expectation of life is greater. Complications developing in the last stages of the disease were not considered. The shortest life period since first symptoms were noticed was six years, and the longest seventeen years; the average duration was ten years and three months. Two patients are still living who have had leprosy thirteen years, two others eleven years, and one ten years. All these cases are of the nodular type.

Reactions: The tuberculin and Wassermann reactions are here recorded. The luetin test was applied to six patients, and of these only one gave a positive reaction, and this case was also the only one from whom a positive history of syphilitic infection was obtained. Special attention is called to the Wassermann reactions, as in several cases patients with leprosy have been treated at the public hospitals for syphilis, based on the positive reaction found in the majority of leprosy cases.

Table No. 6.

QUANTITATIVE WASSERMANN TESTS

CHOLESTERIN ANTIGEN.

NAME.	TYPE OF DISEASE.	STAGE.	RESULT.	QUANTITY. ANTIGEN,	QUESTION SYPHILIS.
F. B.	Nod.-ulc.	Advanced	+ +	.003	No.
I. B.	Mixed	Advanced	Negative	....	?
M. C.	Nodular	Frly. adv.	+ +	.003	No.
M. G.	Nodular	Advanced	+ +	.003	No.
L. D.	Mixed	Advanced	+ +	.003	No.
S. G.	Nodular	Advanced	+ +	.003	No.
M. M.	Anesthetic	Frly. adv.	+ +	.003	?
L. P.	Nodular	Advanced	+ +	....	No.
W. Q.	Nodular	Early	+	....	?
Y. T.	Nod.-ulc.	Advanced	Negative	....	No.
H. K.	Nodular	Early	+ +	.003	No.

N. B.—A case seen in Connecticut, an early but well defined nodular case, gives the identical quantitative Wassermann result as shown in the above table. It is, therefore, of sufficient interest to suggest to a keen investigator that research along the lines of quantitative analysis may show distinct differences between leprosy and syphilis. These examinations were undertaken with this in mind.

Table No. 7.

TUBERCULIN REACTION.

(Von Pirquet Method.)

Name	Date	Local Reaction.	Time After Inoculation.	Duration of Reaction.	Height of Reaction.	Systemic Disturb.	Pulse.	Temp.
M. C.	April 25	Slight redness	24 hrs.	5 days	48 hrs.	None	Sl. 82	98.8°
Y. T.	April 27	Good react., red, swollen marked induration.	24 hrs.	5 days	48 hrs.	Headache pain	Increased 100	100.°
M. G.	April 27	Slight redness.	28 hrs.	2 days	30 hrs.	None	94	99°
L. D.	April 28	Good react., red, swollen marked induration.	24 hrs.	5 days	32 hrs.	None	106	99.8°
W. Q.	April 28	Slight redness	28 hrs.	1 day	Neg.	None	90	99°
H. K.	April 28	Slight redness	26 hrs.	2 days	30 hrs.	None	80	98.2°

VACCINES AND VACCINE THERAPY.*

By WILLIAM H. HARRIS, M. D., New Orleans, La.

The term vaccine was originally applied to any biological material employed for preventive inoculation against disease. It had its popular application in the material containing virus and collected from the vesicle of cow-pox, so generally and successfully employed in the prevention of smallpox. The term vaccine, now generally utilized for killed or attenuated bacteria, is analogous to vaccine as applied in smallpox prevention, inasmuch as this "vaccine lymph" contains a virus or micro-organism which is inoculated for the purpose of producing defensive agents in the human host. While such is the nature of vaccines in general, much confusion at times seems existent as to the exact identity of a vaccine, and often one finds the terms "serum" and "vaccine" used without an understanding of the vast differentiation of these two biological products. Vaccines, therefore, as made use of, for example, in the prevention of typhoid fever or the treatment of staphylococcal infections and the like, are composed of whole bacteria *per se,* or plus the various materials emanating from or contained within their cell structure. Such entities are termed antigens and serve to produce, by their

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injection, antibodies within the experimental animal or person thus inoculated. Such defensive substances are formed by the immunity-producing apparatus or somatic cells of the individual, and an immunity thus formed by the activity of the host proper is spoken of as an active immunity and is of the same nature as that immunity against disease acquired by having had that same disease. The term "serum," as now generally employed, is applied to the actual blood serum collected from an animal which has been actively immunized by receiving vaccines, and this serum is then administered to the individual who has played no part in the immune body production, and hence this is termed passive immunity. As, for example, in diphtheria, serum or antitoxin, the horse is actively immunized by receiving repeated injections of vaccines or the bacterial product, namely, toxin, and the serum of this animal containing immune bodies is then administered to the victim of diphtheria. Herein, the horse has received vaccines, or, in reality, the toxin antigen, and the individual the serum or antitoxin. The horse is actively immunized, the patient passively immunized. The active immunity is more or less plurative, or lasts to a considerable extent, whereas the passive immunity is transient and disappears within a short period; for example, two or three minutes.

It behooves me to apologize, in part, for this explanation between vaccines and serums, but it has been my experience that confusion often exists among men whose time has not permitted them to recognize such distinctions, although they are called upon to use these products as part of their armamentarium. I may mention that I recently made an autogenous vaccine for a medical man of much prominence, and he was surprised to find apparent debris within the vaccine which had gravitated at the bottom. This deposit was, of course, nothing but the dead bacteria which constituted the vaccine and became a homogeneous dispension when the tube was well shaken. A serum is clear, of course, but a vaccine is cloudy from the organisms which, in reality, constitute the vaccine.

Vaccines may be simply killed or attenuated bacteria, they may be the whole bacteria or they may be crushed or pulverized, as in the Besredka antigen or the Gay's modification of the Besredka vaccine, or, again, they may be sensitized—*i. e.*, acted upon by a serum derived from an animal immunized against that same organism. These various modifications are calculated to so bring out certain of the factors, be they toxins, toxoids, toxones, ferments,

precipitinogens, agglutinogens, opsogens, lysogens or amboceptorgens and the like, to create an antigen best capable of stimulating the production of receptors or antisubstances to injure or kill the injurious invading micro-organisms, neutralize its toxic or harmful products, or to assist other powers of defense of the offended body.

As a general statement, it may be said that all infectious diseases affecting the human body are eradicated from that body by the defensive army powers contained therein. This defensive army plus the full reserve power and the response of volunteers is provoked by the invasion of the host's enemy, the bacteria. It is the ingress of these disease-producing or pathogenic bacteria that stimulates or occasions the response and production of fighting defensive powers. The efficacy of these substances to produce a highly potent immunity is no longer even a debatable subject. A striking evidence of this phenomenon is shown in the horse, in the production of diphtheria antitoxin and tetanus antitoxin, and in the human, in the results accomplished by vaccination against typhoid or against smallpox.

In the discussion of the usefulness of vaccines one overlooks the foregoing facts, which they are ready to admit, but their objections are usually directed against the use of vaccines in general. I should concur with the opinion of those who object to vaccine to this extent, viz: that the promiscuous use of vaccines, and especially to improperly prepared vaccines, is certainly not in order. As a rule, properly prepared autogenous vaccines are those from which we may expect the best results. We must remember that no therapeutic measure is 100 per cent efficient, and failures based on an occasional case form no justifiable or scientific basis for the ofttimes sweeping assertions of their inefficiency and uselessness. There are instances, of course, where the individual is highly vulnerable to infection and wherein the immune apparatus cannot be stimulated. This is the fault of the human mechanism and not the fault of the stimulant employed.

It is my opinion that, in general, autogenous vaccines are indicated in more or less localized infections where bacteremia is not present, such as acne, furonculosis, inflammations of the various bony sinuses, pyelitis, certain anthritides, chronic gonorrhea and bronchial empyema that has been drained, and the like. This opinion is based upon a considerable experience, extending over eight years of hospital and outside laboratory work. The matter

of the employment of vaccines in true bacteremias or generalized constitutional infections, such as typhoid, puerperal septicemia or septicemias in general, is still subjudice in my experience and will require a larger number and variety of cases to formulate a final opinion. Many authorities, however, claim they are efficacious in these infections. We must remember that the use of tuberculin is strongly upheld by many, and tuberculin is, of course, nothing else but a variety of vaccines.

It might be well to mention just here that much prejudice has been excited among the profession against vaccines by the disappointing results often occurring from faultily prepared or selected vaccines, and for this reason autogenous vaccines *properly prepared* are advocated.

One could expatiate at great length upon the subject of vaccines, but time does not permit, nor would further technical details of this subject offer sufficient interest in a general meeting. The subject of most interest to this body, which I have attempted to discuss, is the present status of the practical value of vaccines in treatment and prevention of disease. As a general statement, I might say that vaccines, like so many other innovations injected into our profession, have had their three phases—*i. e.*, a primary stage of optimism, a sort of a cure-all, panacea, etc., period; a secondary stage of pessimism, or no count, failure, novelty, and the like period; and finally a tertiary stage or a period of realism, in which the actual good, the questionable good and the shortcomings are appreciated. I have chosen these stages to express the occurrence rather than the swinging of the pendulum which we hear every year. Perhaps no better comparison of the various mental processes stimulated throughout the early career of a newly launched panacea could be selected than the phases now more or less culminated by time and experience in our dealings with salvarsans—*i. e.*, a tertiary stage or phase of realism is now more or less finally reached, whereas its past existence has experienced optimism and pessimism to a considerable extent.

DISCUSSION ON THE PAPER OF DR. HARRIS.

Dr. T. J. Dimitry, New Orleans: I do not know of any paper that I was more delighted to hear than the one Dr. Harris has presented to us. The thing I wish to bring out first and foremost is with reference to using dead bacteria, for vaccines are dead or attenuated bacteria; hence, do dead bacteria differ greatly from any other protein found in the animal and

vegetable life? and, if the bacteria are dead, what are the chemical constituents of dead bacteria? Here it is that Vaughan and Wheeler and Jobling have gone so far as to make a chemical study of these bacteria, and they find they contain a poisonous substance, which is identical with the protein found in the vegetable and animal life. After all, when you use a vaccine you really and truly are not injecting specific vaccine to obtain the results that you think you are getting. You probably would obtain the same effect with any protein you may use. I have recently been making some studies in this particular line, and my studies have all been clinical. It has been a great surprise to me to note what a magnificent effect I get when I use a non-specific protein. I mean by a non-specific protein that I may use egg albumen, I may use sterile milk, and I inject the protein into the buttocks and get identically the same effect as obtained by many of the vaccines. The proteins are injected with favorable results, and the literature is filled with such reports as I am now reciting.

As early as 1887, Matthes claims that he could procure the same reaction if he injected a little protein as could be obtained when he injected tuberculin. We all know that tuberculin has been used as a curative means for paresis, which is a syphilitic condition, and that typhoid fever has been treated with colon bacilli. After all, the question arises, is there any true specificity obtained from these dead bacteria? They are dead, gentlemen, and most of these organisms, or at least many of them, have little exotoxin. The proteins are really made up of three groups: the primary group, the secondary group, and tertiary group, and it is with the secondary and tertiary groups that we really and truly have the poisonous effect. The whole idea of immunization, infection, sensitization and anaphylaxis is all brought out in the study of proteins.

I would like to recite my own experience with the use of protein for the cure of certain eye conditions. Others are using the same method and are obtaining the same results. I have recently been treating trachoma with a protein. I use milk, and I boil a certain small quantity for about five minutes, and I inject into the buttocks, and it has a most wonderful effect on the trachoma. Friedlander recently reports in one of the medical journals that he has treated forty cases of trachoma with the injection of milk and he has obtained good results. Vaughn has gone so far as to tell us that, by injection of a small and limited amount of protein, continuously repeated, he can make for us a typical chart of typhoid fever. This non-specific therapy is to be a predominant issue soon, if it is not already so. Is there such a thing as a real, true specific therapy? Is there to be a better explanation for our vaccines and their action? This investigation of non-specific protein is to be favorably commented upon, but we should not permit the pendulum to swing too far.

Dr. A. A. Herold, Shreveport: Referring to Dr. Harris' paper, I noticed that, while he did not exactly condemn the use of the vaccin of organisms killed by the old or slow method, he preferred the chemical method. I wish to say that I have seen excellent results by the old or slow method, especially in skin infections.

There is one question I would like to ask Dr. Harris to bring out, although his paper does not deal with any specific conditions, but was merely a paper based on generalities. Dr. Dimitry's discussion would probably make this pertinent. In the **Journal of the American Medical Association** for January 13, 1917, there is an interesting article by a Dr. King on

the subject of the Connellan-King diplococcus. One of these men is a bacteriologist and the other a nose and throat man. They bring out the fact that what we have previously claimed to be an infection with the streptococcus viridans, causing the most troublesome arthritis, is caused by a diplococcus. To make a vaccine of this specific organism will give almost miraculous results. Maybe Dr. Harris can enlighten us on this phase of the subject. That is one instance in which I fear a non-specific protein would not produce the same results, because I have seen these cases of arthritis treated with all kinds of vaccines which contained protein matter and the patients failed to improve.

Dr. Harris (closing): In regard to Dr. Dimitry's timely remarks, I might say we, of course, delve into the subject more deeply than I attempted to do in my paper. It was my aim to try and bring out the processes of immunity, and at the same time to aim in the direction of the question of specificity.

As regards the question of the use of proteins to produce a beneficial effect, I will say that proteins are all dead matter of the bacterium, which is the etiologic factor of the disease, and are always preferable, for the reason that these organisms, although dead, are greatly attenuated. They are capable of exciting in the individual into which they are injected antisubstances in the form of lysins, antitoxins, and so forth. We should take some pus-growing organism, kill the organism, then inject it into an individual. Then, in course of a reasonable time, we should take some of the serum of that individual and test it upon the organism we have injected. We might find we had a specific lysin which would autolyze the bacterium, or would not autolyze the bacillus. In other words, the specificity is definite.

I dare say that, while there is a certain amount of homologous antibodies for the staphylococcus albus organism, still the degree of specificity would be clearly demonstrated in favor of that specific organism. Likewise, in the pneumococcus infections, and so on. Even in pneumococcus infection the pneumococcus is used in the production of a pneumococcus serum with variable results. But it is very clearly shown that not only must we use the pneumococcus, but use the pneumococcus one, two, three or five, and be able to get results in the particular diseases. The pneumococcus injected into the heart must be of that particular strain, and then an open infection. That is the primary idea in utilizing the specific etiologic factor, as it varies in degree of efficiency in certain instances.

We come to the point Dr. Dimitry has in mind, which is recognized by bacteriologists. We not infrequently, if we use certain proteins which have an analogous relationship to the protein organism which causes the disease, get very good results. In the war zone it has been noticed that vaccines of a heterogenous type are capable of controlling infection; nevertheless, I do not mean to say that the most desirable results in vaccine work in general may not be obtained without going into detail about the question of the realization of the specific serum in that individual. One of the most striking analogies bearing out Dr. Dimitry's remark is the question of acid-fast movement, the matter of tuberculosis, and so on down the line. It has been my experience in experimental work on animals that we have not been able to bring out any specificity in the animal we injected as regards the different types of organisms we used. In other words, the tubercle bacillus serum acts just as good against the tuberculosis organism as the other way.

As regards the question of Dr. Herold, the organism that has been reported by Connellan and King is still under judgment. However, I think a specific vaccine-therapy showing us some results is encouraging, and I hope something will come of it. Let us hope it will be an additional means of eradicating these various serious infections.

THE INFLUENCE OF THE PRESENT WAR ON THE TREATMENT OF INFECTED WOUNDS.*

By K. WINFIELD NEY, M. D., New Orleans, La.

The antiseptic principle in the practice of surgery was first advocated by Lord Lister in the latter half of the past century, and the evolution of this principle has, perhaps, done more to extend the domain of modern surgery than the work of any other man. While truly he was the father of antiseptic surgery, "the original idea of the antiseptic system was the exclusion of all microbes from the wound"—a system which, at the present day, has been developed largely without the use of the Listerian antiseptics, preferring thermal sterilization rather than chemical, the development of which constitutes our system of aseptic surgery.

Under the prophylactic influence of aseptic surgery the severe infections encountered by our forefathers became more rare, until they began to be looked upon more as exceptional cases, in which the fault was due rather to a break in the natural defensive powers of the individual or to a flaw in the aseptic technic. The spirit of medicine to-day being more inclined towards prophylaxis than at any other time, has caused us, in these infected cases, to improve our aseptic technic, preventing infections, rather than to the direction of our efforts to the treatment of existing infection, believing the prevention the more important.

This perfection of the aseptic principle and its success in civil practice had established in the mind of the modern surgeon a confidence in his ability to control infection, which was rudely shaken at the outbreak of the present war by the almost universal presence of severe sepsis occurring in men brought back from the front. These wounds are infected to a degree almost inconceivable and out of all proportion to anything observed in civil practice; in fact, in spite of his confidence, the surgeon was confronted with what has been termed a veritable "orgy of sepsis." The antiseptics, and antiseptic methods which were in common use and which had proved adequate for the

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limited needs of aseptic surgery, and in which so much confidence had been placed, proved futile in the combat of these intensely septic wounds. Surgeons endeavored to procure complete primary sterilization of gunshot wounds by saturating them with pure carbolic acid and alcohol, or tincture of iodin, and would afterwards attempt primary suture; but such endeavors were doomed to failure, and the attempts at suture resulted most disastrously, producing severe systemic disturbances which demanded immediate reopening of the wound. This proved conclusively that the methods then in vogue did not sterilize the wound and that primary sterilization with chemical antiseptics was entirely out of the question. In fact, it was soon learned that such wounds may be treated by primary suture only when they can be completely excised.[1] The primary sterilization of wounds having proved a failure, efforts were then directed to the removal by mechanical means of all devitalized tissue and foreign bodies, such as pieces of cloth, shell and detached pieces of bone, with the establishment of drainage by enlarging the wound when necessary, and by making counter-openings in dependent portions. These mechanical principles were, and remain, of primary importance in the treatment of all wounds of war, independent of whatever after-treatment may be instituted.

CAUSES OF INFECTIONS.

The character of the fighting in Belgium and northern France is responsible to a great extent for the severity of the infections, which are due to several factors:

First, the men live, fight and are wounded in trenches dug in land which is perhaps the most fertile soil in Europe, highly cultivated, and fertilized with the excrements of man and animal for years, the soil abounding with bacteria. The soldier, when wounded, has been fighting in clothes caked with this mud and dirt, and has often been unable to attend to the simplest demands of personal cleanliness for weeks.

Second, the majority of the wounds are produced by pieces of high explosive shells, shrapnel, hand grenades and bombs, which, because of their rough and irregular form, produce the most severe lacerations, and often multiple wounds, carrying in pieces of infected clothing and burying themselves deeply in the tissues.

Third, the conditions under which first-aid attention is received in the trenches are most insanitary. The first-aid dressings are often applied by a comrade in like filthy condition; and, should

the soldier fall in the open, it may be hours, or even days, before the rescue is possible—particularly so in the severer injuries, when a man is unable to help himself.

Fourth, after removal to the field ambulance or clearing station, where the wounds are properly dressed, the wounded man is then sent to the base hospitals, which may mean a journey of from one to several days, during which time it is possible to give his wound little or no attention. So that, upon his arrival at the base, these wounds are usually intensely septic, and by this time his dressings are in reality poultices of pus.

Methods of Treatment.

Opinion is greatly divided in France and England as to the method most efficacious in the treatment of septic wounds. The chief difference seems to be between the physiological method of Sir Almroth Wright and the antiseptic method. In Germany the inadequacy of the older antiseptic methods has resulted largely in the open method, where wounds are exposed to the air and sunlight, and to hyperemic treatment after Bier's method. Both of these methods are widely used in Germany.

In the determination of the relative value of a given system, it is essential to definitely understand just what is to be hoped for in the employment of that system; and in the treatment of infected wounds we might say that the system most desirable is the one which produces the earliest extermination of infection to an extent which makes complete suture of the wound a permanent and safe procedure. While it may be possible to destroy the bacteria within the cavity of a wound, or those covering its surface, by the use of chemical antiseptics, we may be reasonably certain that no antiseptic can penetrate the tissues to an adequate depth in a solution strong enough to destroy the bacteria without being of sufficient strength to destroy the tissues also; therefore, with the antiseptic principle, the greatest part of the work, which is the sterilization of the tissues, is in reality left practically to the protective agents of our natural resistance.

Wright,[2] by his hypertonic solution, attempts to accomplish what may be attained by the antiseptic system, and also to influence the factors involved in the normal resistance of the tissues. This he does by the use of a five per cent solution of sodium chloride, with which the wound is constantly irrigated. This hypertonic solution, by osmotic or other action, increases the flow of lymph from the

surfaces of the wound, thereby producing a natural lavage of the tissues, and by so doing maintains an outward flow which opposes the entrance of bacteria. The exhausted lymph, which has spent its germicidal energies, is thus replaced by active, fresh lymph. The continuous irrigation of the wound with the hypertonic salt solution keeps it very moist and greatly facilitates drainage, so that necrosed tissue and bacteria are readily carried away. With this treatment the wound early takes on a healthy, granulating appearance, with practically no pus. The induration surrounding the wound is affected very markedly and disappears rapidly. After this is accomplished, it is necessary to change the character of the solution to an isotonic or normal salt solution, which encourages diapedesis rather than osmosis, and the leucocytes which were retarded by the hypertonic solution appear on the surface of the granulating tissue, producing a thin white film. Their strong phagocytic action, in turn, prevents reinfection of the tissue.

In the use of this method it is imperative that the tissues be kept constantly laved with the solution in use. This is best accomplished by the use of small-sized rubber tubing carried to the depth of the wound, around which gauze is packed, it coming in contact with the walls of every pocket and recess of the wound.

Colonel Gray[3] has had very satisfactory results in treating wounds of war by using salt packs and bags in which the sodium chloride is used in tablet or powder form. Their action in stimulating the outflow of lymph from the tissues keeps a solution of the salt in such proportions as to produce results similar to the saline treatment of wounds. The value is evident in the transportation of the wounded where the continuous irrigation of the wound would not be possible. I have seen brought into the base hospitals hundreds of cases which have been treated in this manner, and have found their wounds in a better condition than were those which had undergone other forms of treatment. This seems to be a most desirable method to use during transportation, or when time does not permit the use of the more complicated procedures of continuous irrigation.

Rutherford Morrison[4] advocated the use of a paste in the treatment of gunshot wounds which is composed of one part bismuth subnitrate, two parts iodoform, with sufficient paraffin to make a thick paste; but such treatment has not the advantages of lymph lavage, and it has a tendency to inhibit drainage, particularly if used in bony cavities. I have found it more satisfactory to use the same proportions of bismuth and iodoform in liquid paraffin, pro-

ducing a mixture about the consistency of cream, with which the gauze is saturated before packing the cavity. This is advantageous in that it lessens the pain in changing dressings and does not interfere with drainage. With this treatment, union by second intention is only possible, as primary suture with primary union is not to be expected.

The antiseptic method at the present time receiving the most attention, and which has been most successful in producing a rapid disappearance of the micro-organisms infecting wounds, is known as the Carrel-Dakin method. Carrel[5] has worked out the technic of using a solution of sodium hypochlorite, known as Dakin's solution,[6] but it is this technic, rather than the special antiseptic, that has made this treatment so satisfactory. The value of the hypochlorites as disinfectants has been known for many years, but because of their caustic and irritating action upon the tissues they were not used in surgery until Dakin and Lorrain Smith, each working independently, were able to compound a hypochlorite preparation which was practical for surgical use. Smith's preparations are known as Eupad and Eusol; Eupad being a powder which is composed of equal parts of chloride of lime and boric acid; Eusol being a solution of this powder and containing from five to six-tenths per cent of hypochlorite. This is somewhat stronger than Dakin's solution and slightly more irritating. Dakin's solution is one of sodium hypochlorite, and is perhaps used more extensively than any other hypochlorite solution. However, Daufresne has modified this solution somewhat, making it without boric acid, and this is the solution now being used by Carrel at Compiegne. It is important that these solutions be not stronger than 0.5 per cent, as they are then caustic, and, if much lower, their antiseptic value is impaired. The germicidal properties of the hypochlorites, taking carbolic acid as a standard, may be expressed as carbolic acid 100, hypochlorites 14,000 to 22,000. With this marked antiseptic action, the hypochlorites apparently do not damage the tissues, and large amounts may be used without toxic effects. As is the case with all antiseptics, its bactericidal properties are soon expended; therefore, it is necessary that a constant fresh supply of the antiseptic be kept in contact with the tissues.

These hypochlorite preparations are inexpensive, but rapidly lose their strength and should not be kept longer than one week. They have the double advantage of being powerful antiseptics and at the

same time possessing hypertonic properties capable of producing an outflow of lymph, as does the hypertonic solution of Wright.

While this new field of antiseptics promises much in the treatment of infections, it is more the question of technic that is responsible for their success. The technic of Carrel has proved in his hands, as well as in the hands of those who use it correctly, most efficacious in clearing up the infection of wounds, making them satisfactory for closure by suture or other methods. Fresh wounds in which infection has not become established are usually ready for suture in from four to five days, and wounds in which infection has become established are frequently clean in seven to fourteen days. After suture, these wounds heal by primary intention.

The Carrel technic consists in opening these wounds sufficiently wide to give free access to all parts of the cavity, extreme care being taken to search out and lay open all pockets; all foreign bodies, such as pieces of shell, cloth, loose pieces of bone, are removed, and all devitalized tissues carefully cut away. Hemorrhage is controlled by ligating or twisting the vessels. The wound is then irrigated with the hypochlorite solution, and rubber tubes six millimeters in diameter, covered with bath toweling, are carried to the recesses of the wound. Around these tubes gauze is lightly packed, but it must be so arranged that the solution, which is carried in by the tubes, will come in contact with every part of the wound cavity. If any culs-de-sac are overlooked, the treatment will fail. In compound fractures the tubes are arranged so that the ends lie between the bony fragments. The wound is then covered with non-absorbent cotton, through which the tubes pass. These tubes are connected above to an irrigator, and the solution is run into them every hour or two, thus constantly applying to all parts of the wound a continuous fresh supply of the antiseptic, and at the same time facilitates drainage in the most ideal manner.

Bacterial Count.

The bacteriological examination of a wound is of primary importance in the determination of the condition and time when the wound may be safely sutured. This examination, apart from determining the nature of the infecting organisms, is directed towards estimating the number of bacteria present, and is known as the bacterial count. This count is made by preparing a smear after the usual method, and examining the same with a one-twelfth oil immersion lens. The number of bacteria are counted in a micro-

scopic field. During the first twelve hours, smears are usually negative; however, cultures are positive. But, after the first twenty-four hours, the number of bacteria increases rapidly, until at the end of the second or third day they are too numerous to be counted. At this time the field is usually loaded with bacteria and polymorphonuclear leucocytes. After the fifth or sixth day with the Carrel treatment, the polymorphonuclears have gradually diminished in number and are replaced by mononuclears, the bacterial count being greatly reduced. These mononuclears are replaced in ten or twelve days by michrophages, and their presence in the wound indicates its almost complete sterilization, there usually being but very few bacteria at this stage. After the bacterial count has been reduced to about one bacterium to every five microscopic fields for several consecutive days, the wound may be safely sutured and primary union expected. This bacterial count is one of the most important phases of the Carrel technic, and should be made every two or three days, and records kept of the results. This is usually best accomplished by the use of charts for this purpose. In these smears, after the incubation period of the wound, the first bacteria to appear are usually the micrococci, which are rapidly followed by a very great variety of other micro-organisms; but in wounds well drained these bacteria rapidly become exterminated and usually the only remaining organisms are the micrococci.

While in the Carrel-Dakin technic the principle of lymph lavage is combined with that of a powerful and harmless antiseptic, with excellent drainage, the opening of new fields of antiseptics may produce more efficient means of treatment in this line, as is seen in the introduction of flavin and brilliant green, which are accredited with being non-toxic, non-irritating, and having great potency against all micro-organisms, even in the presence of protein material. Of these two newer antiseptics I make mention, but have had no experience in their use.

In the beginning of the war we believed that the fate of the wound depended upon the first dressing, but it was soon learned that the wounds of the war are infected from the beginning. It was not the place for aseptic surgery, upon which our modern school is founded. Our confidence in our ability to produce primary chemical sterilization of wounds having been so rudely shaken, proved how quickly we had forgotten the teachings of Lister and the problems confronting our fathers before the days of antiseptic surgery; but grim Necessity has again been served, and, where in-

fections seem uncontrollable and unlimited in extent, surgical science has again arisen to meet the needs of humanity.

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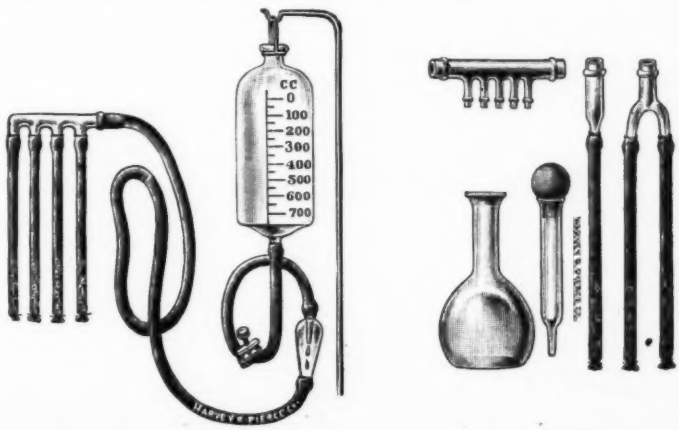
DISCUSSION ON THE PAPER OF DR. NEY.

Dr. P. B. Salatich, New Orleans: I would like to ask Dr. Ney to explain the technic more in detail as to the way they use this tube. Evidently, if I understood him, they introduce this tube to the depth of the wound, having perforations all around and packing gauze lightly around, and, instead of moistening the gauze, the solution comes up from the bottom and moistens the gauze from below.

Dr. Ney (closing): In answer to Dr. Salatich's question, I have here the apparatus which is used by Carrel at Compiegne for the treatment of these infected wounds. These tubes are carried into the depths of the wound, into all of the pockets and recesses. The bottle is filled with the solution of hypochlorite, and a piece of cotton is placed in the bottom of the bottle, which allows filtration of the solution. These tubes are connected so that one may use one, two or three as required. It is not the question of keeping up a continuous drip, but every hour or two enough of the solution is allowed to run into the bulb to insure a sufficient supply of the antiseptic. We do not use this in the form of a Murphy drip. All cavities are loosely packed with gauze and the fluid is thereby carried to all recesses of the wound. This apparatus was furnished to me by the McDermott Surgical Instrument Company.



UNSUSPECTED CHRONIC APPENDICITIS RECOGNIZED DURING THE ROENTGEN EXAMINATION OF THE GASTRO-INTESTINAL TRACT.*

By AMEDEE GRANGER, M. D., New Orleans, La.

Cases of unsuspected appendicitis are not as uncommon as might be supposed. During the past three years I have discovered unmistakable evidences of chronic appendicitis in ten patients whose gastro-intestinal tract I was examining with the Rœntgen rays for supposed abnormalities in the stomach or the duodenum, and in whom the possibility of appendiceal disease was not even thought of. The symptoms in these cases were not constant, but such as to suggest gastric or duodenal disease, and all the cases examined had been diagnosed, and by competent men, as probable gastric or duodenal ulcers, with the exception of two. In those two the diagnosis of gastric neurosis had been made. Not one of these patients complained of pain and tenderness in the right iliac region, and there was nothing in their histories which could have suggested that the appendix was the offending organ. The duration of the illness in these cases had been from a few months to nine years, with irregular intervals in the cases of long duration, during which the symptoms would disappear altogether. All the cases had been under treatment, some for gastric or duodenal ulcer, others for various forms of dyspepsia, still others for neurasthenia or gastric neurosis.

A brief history of one of the cases will, I believe, prove interesting. The case selected was the first of the series furnishing the subject-matter for this paper; it was unusually interesting, and the patient, whom I saw two weeks ago, has remained well during the three years which have elapsed since the appendectomy.

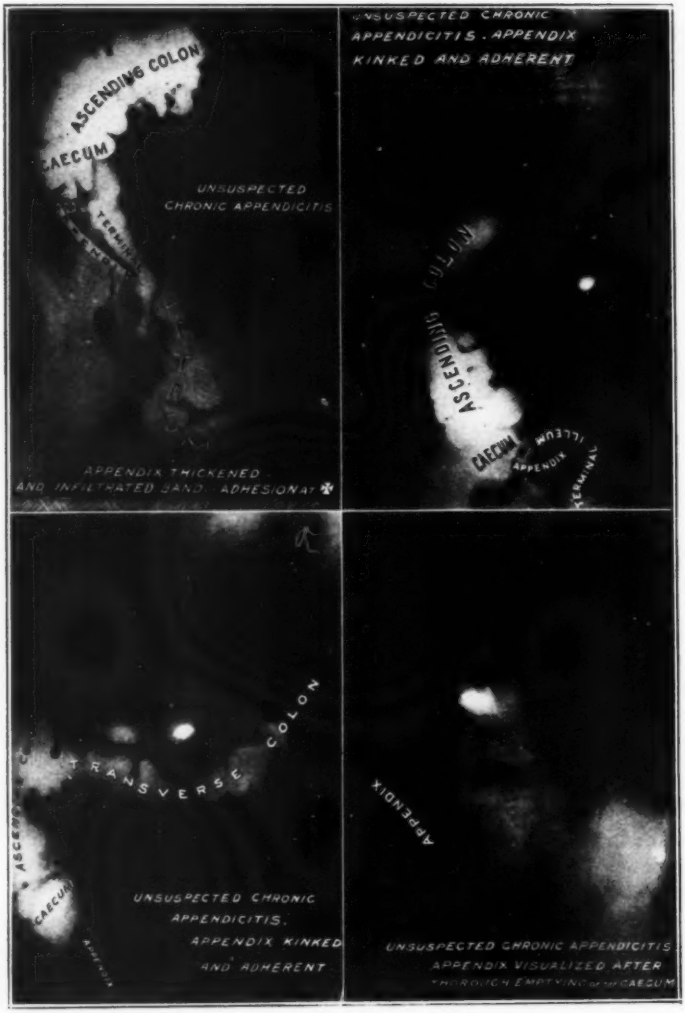
Mrs. R. P.; age 31; married; a native of a European neutral country, but a resident of the United States for about nine years. Referred for examination January 27, 1914, with a probable diagnosis of gastric or duodenal ulcer. At that time she stated that her trouble dated back eighteen months. She had been treated for dyspepsia by her family physician for several months before he referred her to a gastro-enterologist. The latter made a diagnosis of gastric ulcer, and after treating her several weeks decided that the ulcer, if any had existed, was healed, and that she was now suffering from some form of gastric neurosis, and he referred her to a neurologist. After remaining under his treatment for some weeks, and once during that time taking a rest-cure, consisting in rest in bed in a quiet room and on a very restricted diet for a period

*Read at the 38th Annual Meeting, Louisiana State Medical Society, Alexandria, La., April 17, 18, 19, 1917.

of six weeks, without obtaining any permanent benefit, she consulted the surgeon who referred her for the Rœntgen examination, her mind fully made up to be laparotomized if necessary to find out the exact nature of her trouble and of having it removed if possible. She said that during the brief periods of well-being which she had during the eighteen months since the beginning of her illness she could eat anything and it caused her no inconvenience, but that at all other times everything she took, even milk, would produce a distressing sensation, amounting often to actual pain in the epigastrium. The degree of the discomfort or pain did not bear any relation to the quantity or the quality of the food she took. At times the unpleasant symptoms would begin immediately after eating, then, at others, not for two or three hours after. They sometimes lasted for a few minutes, then again during the whole time of digestion. During her entire illness she suffered more or less from constipation.

The fluoroscopic examination of her stomach after the ingestion of the opaque meal showed an abnormal increase in the number and depth of the peristaltic waves, a decided tendency to spasmodic contraction, almost amounting to the hour-glass type in the pyloric portion of the stomach, and a marked pyloro-spasm. There were no painful pressure points, no incisturia, no filling defects; in fact, no evidence of disease or adhesions of the stomach or the duodenal cap. The six-hour plate (Fig. 2) shows no gastric residue; the opaque meal has passed beyond the hepatic flexure. The terminal ileum, cecum, appendix and the ascending colon are filled with it. The appendix is kinked. In the twenty-four-hour plate the appendix and the caput cecum were still filled with the opaque meal and had the same shape and position seen in the six-hour plate. The terminal ileum, ascending and transverse colon were empty. I concluded, from that evidence, that the appendix was the seat of chronic inflammation and that it and the cecum were bound down by adhesions. The patient was operated on during the month of March, 1914, and the Rœntgen findings were confirmed.

In answer to those who may suggest that the gastric symptoms may not have been due entirely to the chronic appendicitis and the resulting adhesions, and that the operation may have cured the neurosis, I wish to say that, shortly after being operated, this patient and her husband, who, although living in this country and intending to make this their home, had never become naturalized, went on a visit to their old home in Europe. They were there when the war broke out, and, being still of military age, he was ordered to the colors during the mobilization which was general throughout Europe. He sent his wife to London, with instruction


ASCENDING COLON
CAECUM
UNSUSPECTED
CHRONIC APPENDICITIS
APPENDIX THICKENED
AND INFILTRATED BAND - ADHESION
UNSUSPECTED CHRONIC
APPENDICITIS. APPENDIX
KINKED AND ADHERENT
CAECUM
APPENDIX
TERMINAL ILEUM
TRANSVERSE COLON
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UNSUSPECTED CHRONIC
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APPENDIX KINKED
AND ADHERENT
APPENDIX
UNSUSPECTED CHRONIC APPENDICITIS
APPENDIX VISUALIZED AFTER
THOROUGH EMPTYING OF THE CAECUM

to await there news from him, as he intended to desert from his regiment, join her and return with her to their home and business in America. He deserted, met his wife in England and they secured passage for this country. For days they feared arrest, realizing fully the consequences of such an eventuality, and it was not until they got off the steamship and had left the pier in New York that they felt safe. When they reached New Orleans three days later both were on the verge of nervous collapse, but her former trouble did not return.

After I had seen three cases I began looking for trouble about the appendix whenever I found spasmodic contractions of the stomach, especially of the pylorus, with no six-hour residue, and no Rœntgen evidences of disease of the stomach and the duodenal cap. In such cases I always make a ten- and twenty-four-hour plate, besides the usual number of plates, immediately after the opaque meal and the one six hours later.

If the appendix is not seen in either the six-, ten, or twenty-four-hour plates I have the patient take two copious enemas and return for another exposure. In several instances retro-cecal appendices, which were not visible in the earlier plates because they were hidden from view by barium-filled cecum, became plainly visible after the colon had been emptied (Fig. 4).

The Rœntgen findings on which the diagnosis of chronic appendicitis was made in these cases were:

A fixed appendix shadow, meaning by that an appendix shadow which could not be moved by manipulation during a screen examination, or one found in exactly the same position and location on plates made at several hours' interval; an appendix shadow showing persistent kinks or constrictions; or an appendix shadow still plainly visible hours after the cecum and the ascending colon can no longer be seen.

When the appendix shadow is not freely movable, or when it is kinked or constricted, the appendix will be found adherent, and the seat of chronic inflammatory changes.

An appendix that is not emptied of its opaque meal when the cecum and the ascending colon are, is a non-functioning appendix, one whose walls have lost their elasticity and contractility. This is always the result of infiltration and thickening of its walls by the chronic or recurring inflammatory condition of the appendix.

In conclusion I wish to emphasize two facts:

1. That a patient may be suffering from chronic appendicitis, and yet have no symptoms suggesting trouble with that organ, but present a clinical picture strongly suggestive of ulcer of the pylorus or of the duodenum.

2. That the appendix shadow is sometimes hidden from view by the shadow of the cecum, and can only be visualized by a thorough emptying of the cecum.

DISCUSSION ON THE PAPER OF DR. GRANGER.

Dr. K. W. Ney, New Orleans: From the standpoint of the abdominal surgeon, I would like to say that I believe all cases presenting obscure abdominal lesions, and especially those types of cases presenting what we term the chronic abdomen, should always have an X-ray examination made before attempting a diagnosis or some surgical intervention. For instance, with the X-ray examination, the gastro-intestinal tract is visualized during physiological activity. On the operating table the contents of the abdomen are examined only when physiological function has been suspended during anesthesia, and then it is only possible to detect gross pathological lesions. We are developing into the age of physiological surgery, where diagnosis may only be made by the study of physiological function. For instance, we frequently see cases suggestive of gastric duodenal ulcer which are in reality disturbance of function due to the chronic appendix. An X-ray examination in such cases is indispensable, inasmuch as the stomach and duodenal findings are negative, and it throws light upon the true nature of the trouble.

There is one question I should like to ask Dr. Granger: Does he consider the patulous appendix, or the appendix that permits the entrance of bismuth, to be diseased? I have frequently seen the removal of a very large appendix, with large lumen, with most beneficial results, where the microscopic examination proved afterwards to be normal, in so far as pathologic anatomy was concerned. I consider the beneficial results obtained to be due to the removal of the source from which colonic toxins were being rapidly absorbed, owing to the structure of the appendix, a condition which I have termed appendiceal stasis. The removal of such an appendix is a question of physiological surgery.

Dr. Scott, Alexandria: I would like to ask a question along the line Dr. Ney suggested. The normal appendix is a patulous appendix under ordinary conditions, barring, of course, appendiceal kinks and ileal kinks from imflammatory or pre-existing veils of peritoneal membrane.

From the standpoint of the Rœntgenologist, I would like to know if Dr. Granger considers an appendix which is filled completely with bismuth a normal appendix. In inflammatory conditions we know that the appendix is generally filled, and does not empty itself completely.

Dr. Wallace, Alexandria: I did not hear all of Dr. Granger's paper, but it would seem that if the appendix was only partly filled, or half filled, it would be somewhat conclusive of a pre-existing inflammatory condition. That may be of assistance in making a diagnosis with the X-ray.

Dr. Granger (closing): There is a certain percentage of appendices (25 or 30 per cent) that are perfectly normal, and yet are not visualized

during examination. In cases of chronic appendicitis the appendix often becomes occluded by the chronic inflammation, and it cannot fill with the opaque meal. It has been my experience that these cases are invariably associated with either ileal or cecal stasis, or both.

The cases mentioned in the paper were all operated and confirmed, so there is no question as to the diagnosis. In every one of these, the appendix was either kinked or constricted or adherent. If the appendix is visualized, and is neither constricted or adherent, and if it is the same size throughout, I would consider it a normal appendix. I think that any appendix in which the distal end is greater than the proximal end is either the seat of a chronic inflammation or is fraught with great danger to the patient, because it is an appendix that would not empty itself if it became inflamed. It could not drain, and the infectious material would remain in it. If the appendix is kinked, if it is constricted at any point, or the distal end is larger than the proximal, I would recommend the removal of the appendix. My experience has been that the appendix shadow disappears within twelve hours after the bismuth has passed out of the cecum and ascending colon. I consider that we have stasis in the appendix and non-functioning appendix whenever the appendix shadow is seen six or seven hours after the cecum and the ascending colon are emptied.

EMPYEMA.*

By GEO. S. BEL, M. D., New Orleans, La.

While it is not my intention, in presenting this paper before the Society, on Empyema, to attempt to bring out anything new in respect to clinical symptoms and physical signs, I have felt it would be of interest to point out the necessity of early recognition in order to avoid the serious consequences necessarily following late diagnosed and undiagnosed cases of pyothorax. Furthermore, to determine the etiological factor in its production, as this has a most important bearing on vaccine-therapy in the after-treatment of the condition. Only recently I have seen twenty-six cases of this condition which should have been diagnosed earlier, and undoubtedly would have avoided much undue suffering, serious pathological changes and delayed recovery. I wish particularly to stress the importance of early diagnosis of pus in the pleural cavity.

Empyema, or purulent pleurisy, is always caused by some pyogenic micro-organism, starting in the lungs or pleura, except in those instances when the infection has come by way of the

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diaphragm or external traumatism. It is a common complication in pneumonias, more especially the lobar type; or from a ruptured tuberculous or gangrenous focus in the lungs, or more rarely a subdiaphragmatic abscess in or about the liver or spleen, rupturing through the diaphragm. In all cases of empyema, one or more varieties of micro-organisms are present, and not infrequently some of these are of the putrefying type, which explains the fetid condition of the pus. The presence of putrefactive bacteria is explained by the fact that the lung, from which the empyema arises, normally contains a variety of such germs, so that while the pus is the result of some one underlying pyogenic bacterium it unavoidably becomes contaminated with the ever-present saprophytes. I mention this specially because so often it is thought necessary to prepare an autogenous vaccine for the treatment of the condition, and it is extremely important to discover the real cause of the pus for this purpose, and not some of these contaminators. If the condition is not diagnosed early and relieved surgically, the consequences may be very serious, the patient dying of toxemia, or a septicemia, or even a pyemia. Infected pus, if allowed to remain, not infrequently leads to serious conditions elsewhere, such as infarcts of various internal organs, acute endocarditis, thrombosis of important venous channels. I have seen phlegmasia dolens, commonly known as milk-leg, follow empyema, in which the empyema was unrecognized.

If the pus is not relieved, it often happens that it becomes organized, giving us a fibrous cicatrix, which contracts, and later hardens, as a result of calcareous deposit forming a solid mass in the pleural cavity. In any event, there is great thickening of the pleura and deformity of the chest as a result of the inevitable contraction. It must be remembered, in view of the serious nature of empyema and the readiness with which it may escape early recognition, that the physician will more often regret his delay than the precipitancy in the use of the puncture needle in a doubtful case. There is not the slightest danger to the patient from an exploratory needle puncture; therefore, this procedure I strongly advocate in every case of pneumonia which continues beyond the usual period without any apparent improvement, irrespective of the physical signs. It is of paramount importance to evacuate the pus early and keep the cavity well drained; otherwise, even after complete recovery, the lung, because of its atelectatic condition, will not cause

the visceral and parietal pleuræ to come into opposition, which makes impossible the obliteration of the sac. This leads subsequently, too often, to extensive surgical interference in order to obliterate the cavity (Schede's operation).

I would suggest to the practitioners attending upon patients suffering with pneumonia or other inflammation that may lead to empyema not to be satisfied with the usual report of the nurse and cursory examination of the chart, and trust too much in the patient's natural processes. It is our duty to aid the host in every way possible against the invader, therefore I repeat again, determine as early as possible the presence of pus and its cause. Excellent results, as you know, are being obtained in the treatment of penumococcal and streptococcal infections, particularly in pneumonia, by antitoxins. The same results should necessarily follow the similar specific treatment of empyema, whose cause is of the same origin. Failures in the past to benefit lobar pneumonia with antitoxin are now known to be due to the fact that the particular exciting strain was not determined prior to the administration of antitoxin. You will recall the excellent results obtained after the method of Cole, of the Rockefeller Institute, in the treatment of pneumonia. This author has found that lobar pneumonia may be due to one of four or five different varieties of pneumococci. The pneumonia due to any one of these is only benefited by the antitoxin prepared from the homologous culture. From this you will see how much might be obtained along the line of serum therapy with empyema, particularly as most of the empyemas are a complication of lobar pneumonia.

Regarding the essential symptoms of empyema, we usually have those common to the preceding condition, which in almost all instances is a pneumonia, irrespective of the cause of the pneumonia, whether it be pneumococcic, streptococcic, influenzal, tubercular or others. It should be borne in mind in this connection that the symptoms of empyema follow those of the original disease without any intermission, or, after the temperature has been normal for several days, it may rise again, and with the return of the fever there are other symptoms pointing to an increase in the thoracic disease. The onset may be accompanied by some cough, but as a rule there is no pain, because the sensory nerve endings have been deadened by the preceding lung condition, and may or may not have dyspnea, depending on the amount of effusion. To the symptoms

which usually are found in serous effusion are added an intermittent (septic) temperature, sweats, chills, pallor, sometimes a localized edema, and in rare instances actual bulging of the interspaces, or even the escape of pus from the pleural cavity through the intercostal space, where it forms a tumor beneath the skin and may cause an intractable fistula through spontaneous rupture. Marked leucocytosis is the rule, the average about 18,000, and few falling below 12,000, differing in this respect from simple serous pleurisy, that in most cases the leucocytosis is, as a rule, moderate, and, as Cabot shows in fifty-two cases, the average count in simple serous pleurisy was 8,820 and only in nine cases did it exceed 12,000.

Physical signs are similar to those observed in sero-fibrinous pleurisy, many depending on the amount of pus in the pleural cavity and other pathological conditions. The characteristic features on inspection are immobility, bulging of the intercostal spaces and displacement of the apex-beat of the heart. Palpation reveals immobility of the affected side and diminished or absence of vocal fremitus. Percussion yields dullness or flatness and a sensation of increased resistance. The upper line of dullness is not horizontal, but is curved, and rises higher posteriorly. In moderate effusion the line of dullness often changes with the position of the patient. Above the effusion, percussion gives a vesiculo-tympanitic note known as Tkoda's resonance. In left-sided empyemas Traube's semilunar space is diminished or obliterated.

The respiratory sounds may be weak, distant or absent, but occasionally they have a distinct tubular quality, and bronchial whisper is distinctly heard over the flat area. Bacelli said the whispered sounds were not transmitted through pus, but this is not my experience, as I have frequently demonstrated this to my students, and then immediately drawn out the pus. (This very symptom accounts for many delayed and some undiagnosed cases.)

In conclusion: Two of the most important diagnostic points to be remembered are, first, when the patient with pneumonia continues to have fever and makes no improvement in his general condition after twelve to fifteen days a needle should be inserted; second, when at the period of time above mentioned and the physical signs are those of either effusion or consolidation of lung, calls for exploratory puncture.

For exploratory purposes, the needle should be large, long, and the syringe should have perfect suction from within. Care should

be used not to insert the needle too far, otherwise you will go beyond the pus into the lung. Such examination, performed under proper antiseptic precautions, is absolutely without danger, even though the needle enters the lung. I advise the inexperienced, who is afraid to puncture too deeply, to cause a vacuum in the syringe as soon as the needle has penetrated the skin. In this way pus will enter as soon as it is reached.

By early diagnosis of empyema, all the complications and sequelæ of infected enclosed pus are to be avoided by prompt surgical measures and the institution of autogenous vaccine-therapy.

It is the concensus of opinion, now established by scientific research, that the isolation and preparation therefrom of the offending micro-organism and of a vaccine and its proper administration following the surgical intervention, is of great value in the recovery of empyemic cases.

Aspiration as a means of cure is no longer used; surgical measures and specific treatment are the measures now employed in all cases of empyema of an acute inflammatory nature.

DISCUSSION ON THE PAPER OF DR. BEL.

Dr. Leon J. Menville, Houma: I think the admirable paper presented by Dr. Bel deserves a great deal of discussion, particularly at the hands of the general practitioner, because it is of such great importance. I think he has sounded the keynote. He has urged me on several occasions to use the needle as an exploratory measure in order to make a correct diagnosis of empyema, and I have done so with great advantage.

As to the vaccine treatment that he mentioned, I think it is being developed successfully, but as yet I have not used it. I contemplate doing so when it reaches a greater degree of perfection.

I recall very vividly to mind the case of a child who had lobar pneumonia. The patient had a continuous temperature following the disease for fifteen to sixteen days. The doctor in attendance, a very competent man, said the child had an unresolved pneumonia. Breathing was still a little rapid; all the physical signs apparently of pneumonia were present; there was consolidation, dullness on percussion, bronchial breathing, and the leukocyte count was around 18,000. After hearing and remembering what Dr. Bel had said regarding the great importance of using the needle, I suggested to the family doctor to use the needle in that case, and we found a cavity full of pus. I merely mention the fact because I realize the importance of using the needle and not waiting too long before using it, because a lot of time is saved.

Dr. A. B. Nelson, Shreveport: I would like to recite briefly a case I had the privilege of seeing for the benefit of the gentlemen present. A boy, about fourteen years of age, was brought to Shreveport by his uncle. The uncle told me, before bringing the boy to Shreveport, that he had tuberculosis, and that he had pneumonia two years prior to this date, and that since that time he had had tuberculosis. He told me he

was spitting up a foul-smelling yellow pus, or something of that kind. After he brought the boy to Shreveport I said to the uncle: "I do not think this boy has tuberculosis. However," I said, "we will have the sputum examined." We examined the sputum and found no tubercle bacilli. We found no evidence of tuberculosis in his chest. The history was that he had had a pneumonia and a continuous fever, presenting a typical history of empyema, and on puncture we found pus. We not only resorted to puncture, but we took an X-ray picture, because I wanted to see whether the X-ray picture would show pus in the side. I drained this boy's chest under local anesthesia, as he was so near death that I could not give him a general anesthetic, believing, if I did so, he would have died on the table. I resorted to local anesthesia, resected a rib, and the boy got much better. The boy was spitting this stuff out of his side, which had been there for a considerable time. The bronchial tubes on that side were undoubtedly involved. He would hang his head over the edge of the bed and the stuff would pour out freely. It was extremely offensive. This boy is not well yet. He will not let me do a radical operation on him. I am still treating him. However, he is getting much better, because I did a slight operation on him not long since.

The point brought out by the doctor, of using a large needle, is well taken. If you use a large needle you will not get small particles of fibrin to clog up the needle, and so there is very little danger. You may make it more pleasant for the patient to use one-half of one per cent novocain, and if you do this there will be no pain connected with the procedure.

Dr. T. S. Jones, Baton Rouge: I would like to mention a case I saw a few days ago which emphasizes the point Dr. Bel brought out in regard to hard-breathing sounds. This patient was brought to us from the country by a man whose ability I consider unusual. I was very much surprised to know that the case had gone along for such a long period as it had, and that he did not discover sooner there was pus in the pleural cavity. That was the reason why he had put off sending the patient to a sanitarium, because he elicited breath sounds so plainly through the pus cavity. He called me over the telephone and told me about the case. When the child was sent to the hospital, in using the stethoscope on the child's breast I misunderstood him and got the wrong side of the child to examine. However, I was able to get the breath sounds through the pus cavity. I am sure this child was lost because of the confusion which this condition caused, and Dr. Bel, speaking of it, prompted me to recite the case to you. The pleural cavity was drained, but the child was too septic to recover.

Dr. J. A. Tucker, Baton Rouge: Dr. Bel has certainly read a fine paper, and the condition he spoke of is very common. We have all seen and drained a good many cavities.

I want to disagree with those who spoke about the harmlessness of using the needle. I have seen one fatal case from exploratory puncture, and I have seen another case that went into extreme shock following a puncture. Both of these cases were handled lightly, and the needle did not touch any vital spot. I think, though, it is due to a psychic condition more than anything else. If you puncture with a needle in a careless way I am afraid you will get into trouble. So, I would disagree with those who believe in using a large needle and in saying that there is no danger in connection with its use. I believe there is. One patient died and the other was profoundly shocked.

Dr. Thomas E. Wright, Monroe: I believe that most of what we can

say would be in the nature of aproval of this paper. There are many features in connection with it that especially appeal to us. The subject of empyema has been stressed and stressed from time to time before audiences of medical men. I think, if we analyze a certain feature of the paper, we would find it stressed largely by men who are associated more or less directly with hospitals. Therefore, I think we may conclude they have a definite reason in stressing the subject of empyema for the benefit of the rank and file of the doctors over the country.

Any time we visit a general hospital we see one case after another of empyema brought to the hospital, and we are surprised how often they come from towns of considerable size and are referred by doctors who did not make a diagnosis. I believe that, in a way, accounts for the fact why Dr. Bel writes again and again impressing upon us the importance of early recognition and proper recognition of empyema. Many men, and good men, often fail to get a proper perspective in this or that particular case. We often fail to insist on a painstaking and careful examination of the chest in these acute pulmonary disturbances, and, oftener than we acknowledge, we allow important features of the case to slip through our fingers and finally refer the case to some one else for a diagnosis, when the average doctor should have made it himself. I emphasize this particular point because it is incumbent upon us to hold in mind every case of pneumonia, in every case of grippe, the possibility of empyema.

Another point Dr. Bel has made appeals to us. The symptoms do not have to abate and the patient improve, later the temperature rising, and other associated symptoms arise, for empyema to be present. As. Dr. Bel so well describes, the symptoms may persist continuously, and the average doctor may look upon the case as one of unresolved pneumonia. I take pleasure in discussing these points, and especially commend the paper. Those of us who do general practice should take this particular subject to heart.

Dr. J. T. Abshire, LeRoy: I am practicing in the country, where I have to rely entirely on my own hook to manage my cases; I cannot refer them to New Orleans practitioners.

In the last twenty years I have been using a large needle for exploratory purposes in all delayed cases of pneumonia which looked to me as being unresolved, and I have never yet had a bad result, and many a time I have discovered a pus cavity and have saved the patient's life. I want to recite one instance in the practice of one of my confreres. The patient was a big, robust man, who had a bad case of lobar pneumonia. I was called in consultation about the eleventh day, and the doctor told me that it was a case of unresolved pneumonia. Both lungs were involved. I examined the case in accordance with the method advised by Dr. Bel, and I could hear the breath sounds with the stethoscope. I asked my confrere if he had used a needle, and he replied he had not, saying it was too early for pus formation. I used a large needle. I stuck the needle into the side of that patient and got the most foul-smelling pus I ever got in my life. It nauseated me. The next day we operated on him, but the poor man died. He did not die from the use of the needle, but died, in my judgment, because the needle was not used quick enough. If the needle had been used two days before, I believe the result might have been different.

I want to emphasize the necessity of using a large needle in every case of delayed pneumonia, or what we call unresolved lung. I have always had satisfaction from its use and have never had a bad result.

Dr. L. R. DeBuys, New Orleans: I think the paper presented by Dr. Bel is very timely, if for no other reason than stressing the one point of getting bronchial breathing through flatness. We should bear in mind, in making an examination of patients, more particularly in children, that the examination should be made by comparison. Each child, and the adult as well, when the thorax is examined, will give an individual note, so that in making our physical examinations of the thorax we should compare a point on one side with the corresponding point on the other. In that way we will frequently detect the early pneumonias or the lung conditions which precede empyema, or, rather, before they are complicated with empyema. Pleural collections in childhood before the third year are usually purulent. All cases, in my practice, of prolonged pneumonia are aspirated, and I think every patient is entitled to it. Every child showing flatness has a thoracic puncture due.

I think the doctor has brought out another very good point, namely, the size of the needle, and the necessity of creating suction just after the needle has been introduced under the skin, so that when it is pushed forward, if it comes in contact with any pus, the pus will be found. If we proceed in this way many cases of unresolved pneumonia will be shown to be cases of empyema.

Dr. J. Wallace Durel, New Orleans: A remark that was made by Dr. Bel last year on this subject has been very valuable to me. In the Charity Hospital we have had during the year seven cases of empyema that have been posted to be transferred to our tuberculous ward. Every time I have told the intern, "Remember what Dr. Bel said." I remember one case very well, in which an intern had resorted to puncture, and, not finding pus, sent the patient back, saying it was a case of tuberculosis which ought to be transferred to the T. B. ward. There were no bacilli in the sputum, and the patient could not be admitted to the advanced T. B. ward. I said to Mr. Intern, "Remember what Dr. Bel said." The house surgeon, that day, was able to find pus and make a diagnosis of empyema. The patient was operated on. We all agree as to operation in cases of empyema.

We have had a series of interlobular empyema, and sometimes I have been up in the air in knowing exactly what to do for these cases, and I wish Dr. Bel, or some one else, would give us some information about them, especially of the condition between the upper and lower lobes.

Dr. Bel (closing): In the first place, I wish to thank the members individually and collectively for the very free and scientific discussions, and I highly appreciate it, more than words can possibly express.

With regard to the case cited by Dr. Nelson, in which the empyema lasted so long, if he could have had a bacteriologist isolate the specific micro-organism, which was the etiologic factor in the production of this condition, and had had a vaccine made, probably his patient would have been greatly benefited.

The recital of Dr. Jones' case emphasizes the necessity of the introduction of the needle in all cases of so-called unresolved pneumonia. We have an individual who has symptoms of consolidation of the lung, and when the patient is not improving in a limited time I would not hesitate to advocate the method employed by Dr. Jones. It is unfortunate that his case should have reached him so late in a state of empyema.

As to the two cases related by Dr. Abshire and the danger of the use of the needle, he pointed out that one of them fainted and the other died. I do not believe the needle had anything to do with it. The needle, when introduced with the necessary precautions by all experienced

practitioners, would never produce any such condition unless the patient was so devitalized at the time the needle was introduced. If the physiological resisting power is below par, the heart pushed one way, the liver another way, and the patient having all the evidences of a profound toxemia, if you introduce the needle in such a case the patient is likely to faint or be shocked, but may not die. The other patient in whom the needle was introduced was undoubtedly so far advanced that he would have died anyway, even if puncture had not been resorted to. Some people would be shocked from the introduction of a needle, whether they had pneumonia or ingrowing toenail. Even if you show them a needle they get cold and clammy. That is not the fault of the needle. The same thing applies to empyema in neurotic individuals.

I appreciate very much the able discussion of Dr. Wright, and the manner in which he appreciated the presentation of the subject.

Dr. Abshire explained the condition perfectly, and I heartily concur with him in his remarks. I thank him for the able manner and simple way in which he has impressed us all. The doctor manifests a loyalty to his colleagues which is unusual and highly commendable. I wish we could all be infected with the same micro-organisms. (Laughter.)

The remarks of Dr. DeBuys emanate from a man of vast experience in treating a large number of children with empyema. I look upon Dr. DeBuys as an authority on the subject and a man with a vast amount of experience in handling these individual cases.

Dr. Durel asked about cases of interlobular empyema, which I left out in my paper, but which is a very hard point in diagnosis. Interlobular empyema occurring in an interlobular patient with the physical signs of dullness, is a sort of encapsulation of the tissue there, has been very hard to even reach, although the X-ray has been used with good results in localizing the shadow where it could be found. There are many cases on record where physicians and surgeons have decided that this or that case was one of interlobular empyema, and only after resecting a rib were they able to find pus. That is a good point brought out by Dr. Durel. In one case it is well to look wise and watch closely for any dullness in the interlobular fissure. I would carefully watch the first type of empyema the doctor mentioned, with X-ray examination, depending upon localization, with a good surgeon. It takes an experienced man to go in there with a needle and remove a small quantity of pus. Sometimes the quantity of pus may be large. There are a number of cases on record where the patient has been given a general anesthetic or a local one, ribs resected, and even then it has been difficult to get pus.

Before concluding my remarks I wish to say that I eliminated from my paper Grocco's triangle, the Winternitz sign, and other things. Grocco's triangle in serous and pleural effusions you can beautifully map out after you know there is fluid in the chest. It is the rarest thing to find Grocco's triangle before one knows he has pleurisy with effusion to deal with. Purulent pleurisy does not shift so quickly. We must consider the pathologic condition. The two most important points to remember in connection with the finding of pus are in cases of pneumonia in which the individual has passed the limit of crisis, which is usually about the twelfth day. After the twelfth day, if the patient is not getting well, you introduce a needle in there. In the second place, the physical signs are those of fluid or consolidation, or bronchial breathing and focal sounds coming through. In such a case, introduce the needle where Dr. Abshire told you and you may be able to elicit a flat note.

SPINA BIFIDA, WITH REPORT OF CASES. *

By E. D. FENNER, M. D., New Orleans.

Spina bifida is an interesting congenital deformity. As seen in the young babe, there are to-day but two recognized methods of dealing with it: to let it alone, or simply protect it from injury, or to operate by excision of the tumor. Although a considerable number of cases have been operated upon and reported in the last ten years, the fact that Jas. E. Moore, in 1905, was able to collect from the Index Catalogue of the Surgeon General's Library at Washington only 385 cases of spina bifida treated by excision, is sufficient proof that we cannot base our conclusions as to the best method of dealing with these cases upon the experience of any individual surgeon. Many surgeons to-day can count their appendectomies, their goitre operations, their gall-bladder cases by the hundreds, but few indeed can report their operations on spina bifida in larger figures than tens. In searching the records of the Charity Hospital in New Orleans I found that from 1892 until 1906 no case of spina bifida had been operated upon until I successfully excised the tumor in the second of my series of cases in the latter year. The reasons for this hiatus I do not know, but it seems probable that such cases as were admitted to the wards were either unsuited for operation or else the consent of the parents could not be obtained.

Spina bifida is not a very rare condition. Next to talipes it is said to be the most frequent of congenital deformities. But if it is numerically second, it is a very bad second. It has been abundantly discussed, and every text-book contains a classification of its varieties. Nevertheless, I expect there are few of us who would not be obliged to turn to one of these texts to refresh his memory upon the classification of this conditions. It seems to me, therefore, permissible to quote from Ballentyne's work on Ante-natal Pathology the various forms of spina bifida. He classifies them as follows:

1. Total Spina Bifida.—The whole canal is open, the cord is exposed, and there is no sac.

2. Partial Spina Bifida.—A. Spina bifida without spinal hernia. The canal is widely open at one or more places, the cord is exposed, and there is no sac. B. Spina Bifida Occulta.—There is no tumor; the cord is not exposed, but there is a defect in the vertebral arches, and the site of the deformity is marked either by a mass of cicatrix or by the presence of

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an abundant growth of hair. In a very few cases the integuments over a spina bifida occulta are apparently normal, and the condition is not suspected until later life. Associated deformities, paralysis of the limbs, incontinence of urine or feces, and the development of trophic disturbances in the extremities are frequent in the subjects of spina bifida occulta. C.—Spina bifida, with spinal hernia (common variety). 1. Meningocele. 2. Meningo myelocele (common variety). 3. Myelocele.

Total and partial spina bifida, without spinal hernia, are mere pathological curiosities. An open canal with exposed cord is incompatible with life, and such cases are merely museum specimens. Spina bifida occulta is comparatively rare, but the individual may live for years, in some instances with the condition unrecognized, and no treatment is ordinarily indicated, unless it be some operation for the correction of a club-foot or the like.

Partial spina bifida, with spinal hernia, is the condition we are called upon to treat in the vast majority of cases. Here we have a tumor located over the spine. In over 80 per cent of the cases it is located in the lumbar or lumbo-sacral region; in perhaps 10 per cent, in the cervical; in 1 to 2 per cent, in the dorsal region. Except for a few very rare cases the tumor presents itself posteriorly, but it must be recognized that spina bifida does occur through a defect in the vertebral bodies, and may be anterior.

Meningocele makes up less than 10 per cent of the cases. It is more common in the cervical region, and the tumor contains only cerebro-spinal fluid, covered by the membranes and skin. Myelocele is exceedingly rare, and is due to a dilatation of the central canal of the cord, so that the tumor consists of the integuments, the spinal membranes, the dilated cord, within which is the accumulated cerebro-spinal fluid. Meningo-myelocele is the variety found in between 70 and 80 per cent of the cases, and in an equal percentage it is located in the lumbar or lumbo-sacral region. In these the tumor contains cerbro-spinal fluid, but, in addition, the filaments of the cauda equina are spread out and adherent to the wall of the sac. This is the only variety I have encountered at operation.

When we attempt to explain the causation of spina bifida we find ourselves at sea. It is well known that the skin and the spinal cord are derived from the epiblast, while the vertebral bodies and the laminæ arise from the mesoblast. The skin and the cord are formed first, in the second month of fœtal life, and they are adherent to each other until the mesoblastic lamina insinuate themselves between them to complete the bony spinal canal during the

third month. Two theories have been advanced to explain the occurrence of spina bifida. The more widely accepted view, endorsed by the Committee on Spina Bifida of the London Clinical Society in 1885, ascribes it to a primary defect of development of the mesoblast, so that the spinal arches are not completed. The other, which is ably defended by Norman Sharpe, of New York, contends that the defect in the vertebral arches is due to pressure exerted by an excessive secretion of cerebro-spinal fluid. He instances the fact that the laminæ meet first in the dorsal region, next in the cervical, and last in the lumbar and lumbo-sacral regions. This does not occur until the third month. The cerebro-spinal fluid is secreted by the choroid plexuses of the lateral ventricles, and these are formed during the second month, before the laminæ have united in the median line. *Ergo,* an excessive pressure by the cerebro-spinal fluid would interfere with the closure of the laminæ, and this would be more likely at the point where the closure is latest, namely, the lumbar region, in which 86 per cent of spinal bifidas are met. Other, but less tenable theories have been advanced, but they are hardly worth discussing, and, having no special knowledge upon the subject, I shall not attempt to decide between the two theories here presented.

In the vast majority of cases the diagnosis of spina bifida is simple enough. The tumor is congenital; it is fluctuating; it occupies the median line, and is in the lumbar or lumbo-sacral region; it is often translucent; it becomes tense on crying or coughing; it may be compressed, with a resultant bulging of the anterior fontanelle, and the defect in the bony arches can be felt. In the rarer forms, however, the diagnosis may not be so easy. Very small spina bifidas are sometimes overlain by lipoma, and an operation for a simple lipoma may prove disastrous, owing to an unsuspected spina bifida. Sacro-coccygeal cysts or dermoid tumors may give rise to uncertainty, but, as a rule, the location and the absence of increased tension on crying will serve to differentiate. As to the differential diagnosis between meningocele, meningo-myelocele and myelocele, we must bear in mind that meningo-myelocele is the variety in almost 86 per cent of the cases; that it is generally sessile, with a broad base; that it is much less apt to be covered by healthy skin than meningocele, and that myelocele is so rare that it may be practically disregarded, especially as its treatment is identical with meningo-myelocele.

The prognosis of spina bifida is gloomy. Excluding the total and partial forms, with open canal, which cannot survive after birth, the clinical types of spina bifida for which treatment is possible show a very high mortality. Moore found that the mortality of the cases operated upon in the early months of life was about 35 per cent, while in those cases in which surgical intervention was postponed until they were four or five years old the mortality sank to about 5 per cent. It is obvious, however, that these figures are fallacious, since only very favorable cases of spina bifida could be expected to survive till five years old, unless subjected to operation. In England, in 1882, there were 649 cases of spina bifida which died, and, of these, 612 died in the first year. The vast majority were surely not subjected to operation, and it is very easy to deduce the conclusion that few cases of the ordinary type could be expected to live long enough to submit to operation in the fifth year of life. The reasons for this excessive mortality in the first year are very plain. Most of the cases are meningo-myeloceles, located in the lumbar region, and are rarely covered throughout by healthy skin. Towards the apex of the tumor the sac is very thin, translucent, composed of a fusion of the epidermis and the membranes, and soon shows ulceration, which terminates in rupture of the sac and the death of the patient. In cases such as this it would seem that any percentage of permanent cures would be just so many lives saved, since, to leave them alone, is to condemn them to certain and early death.

It is interesting to note the conclusions of prominent surgeons as to what conditions justify operative intervention: Bayer, after a rather disastrous experience, would advise operation: (1) Where there was no decided hydrocephalus; (2) where there was no paralysis; (3) where, clinically, there were no complications to be expected in the sac. Hildebrand concludes that "most myeloceles and meningo-myeloceles, and cases complicated by irreparable deformities and severe paralysis should not be operated upon." After reporting several cases, Broca advises against operation. Mayo Robson, in 1895, advised operation in all cases except where the tumor was so small that operation was obviously not necessary, and where there is a large fissure-marked hydrocephalus or paralysis. Moore gives his own conclusion, from his analysis of 385 cases, as follows: "A careful study of the reported cases illustrating the experience of so many surgeons seems to justify the following con-

clusions: 1. Operation upon children of very tender age is scarcely worth while, because it is attended by so large a mortality, and because it does not stop the progress of progressing cases. 2. Patients five or more years old can be operated upon with safety. 3. Patients with large or rapidly growing tumors, with hydrocephalus or paralysis, or deformities of the lower extremities, are not cured. 4. Finally, all we can hope to accomplish by operation for spina bifida is to relieve the patient of an unsightly and annoying tumor, after he has survived the affliction *per se.*"

William Sharpe *(Annals of Surgery,* 1915) believes "that the only contra-indications to operation are a bony defect so large that it could not possibly be repaired, and a condition of absolute paraplegia and loss of sphincteric control. Age is of no importance, since many cases of recovery have been reported in very young infants following operation."

Careful reading of the papers of Moore, Lovett, Sharpe and others, together with my own experience in the operative treatment of some twelve cases, has led me to take a view somewhat at variance with the distinguished writers whom I have quoted. Admitting that the mortality of cases operated upon in the first months of life is as high as 35 per cent, I do not believe that this is sufficient reason for abandoning the case with a very thin sac wall, which will slough or rupture, to certain death, provided the case is otherwise suited to excision. When there is marked hydrocephalus already developed I believe that operation is hopeless. Even in cases with paraplagia, or club-foot, it seems to me that, in the absence of hydrocephalus, the parents should be given the choice. Would any man dare to suggest that a child stricken by poliomyelitis, with complete paraplegia, should be abandoned to die because it would remain a hopeless cripple? The rare cases in which the tumor is covered by strong, healthy integument should have the operation delayed, I believe, if the tumor is small, or, indeed, under any circumstances, because delay does not threaten the child with death, but gives us a chance to determine whether or not hydrocephalus will develop, and also whether the infant's vitality is going to be great enough to survive the "secondary mortality," which is estimated at 25 per cent even in cases which have escaped the dangers of the first three or four weeks after an excision has been successfully done. In the vast majority of cases, the attenuated sac wall and the presence of ulceration, which indicates certain rupture of

the sac, leave us no other choice than either operation in the first two months or abandonment of the child to its fate. In this connection I have never been able to close my eyes to the moral obligation which demands that life should be prolonged wherever possible. I cannot bring myself to believe that the doctor has a right to constitute himself a court of last resort to determine the question of whether or not a cripple has a right to be allowed to live.

The treatment of spina bifida divides itself into three divisions:

1. Simple protection of the tumor to prevent rupture, ulceration and infection and traumatism. This is indicated to carry the child over to a favorable time, to prolong life in those cases in which operation is admittedly hopeless, and in cases with firm, healthy skin over the tumor, in which there is reasonable hope for safely waiting until the fourth or fifth year before operating.

2. Injection of the sac with some irritant fluid of which the type is Morton's fluid. In pre-antiseptic days this was the only feasible method of attempting a cure. It could not be of use in any but meningoceles, and in them only where the neck of the sac was very small. To-day it may be accepted as beyond cavil that any case suited to injection would be more wisely subjected to excision.

3. Excision of the sac. This is the modern method, and the only one deserving consideration. Fundamentally, the operation is extremely simple. An eliptical incision is made through the skin around the base of the tumor, the membranes are left intact as long as possible, are freed from the skin by blunt dissection, but must be opened at some stage. In the great majority of cases the strands of the cauda equina are found spread out over the interior of the sac and adherent to it. These are freed, replaced in the canal, and the membranes closed by purse-string or continuous suture of chromic catgut or fine silk, so as to shut off the spinal canal. Up to this point there can be no difference in the technic. But there is a considerable variation in the recommendations in regard to the rest of the operation. Some have advised osteoplastic flaps taken from the nearby ilium, or transplants of thin bone from the tibia; others advise that a fascio-muscular flap be drawn from either side of the cleft; more recently a transplant of fascia lata has been advocated. My own conviction is that the tender age of the majority of the patients contra-indicates any complication of the operative procedure. Suture of the dura and good closure of the skin is really sufficient, but in

favorable cases I think it is advisable to attempt to suture the lumbar muscles over the gap in the bone. I believe that few of these little ones will bear the tedious process of osteoplastic flaps taken from the neighboring pelvic or sacral region. Equally unnecessary appears to me the procedure reported by Hugh H. Trout *(Surgery, Gyn., Obst.,* May, 1915), where he removed a thin slice of bone from the tibia and anchored it over the small gap in the vertebral arches.

In reading over the literature on spina bifida one is struck by the elaborate precautions advised by some writers to avert the supposed ill-effects of sudden escape of the cerebro-spinal fluid upon opening the sac. I recall a photograph showing an infant prone upon a sort of modification of the Trendelenburg frame, with the pelvis elevated high above the head. In my own experience in cases, the oldest of whom was two months, no shock nor alarming symptoms of any kind ensued upon even sudden, wide-opening of the sac, with prompt escape of all the contained cerebro-spinal fluid. In several cases, however, disturbance of the respiration and heart gave us uneasiness when the sac was subjected to traction in the course of dissection and in the freeing and cutting loose of the strands of the cauda equina.

It has been noteworthy that nearly all my cases went from the the table in excellent condition, showing little prostration from the operation. Within the first twenty-four hours in most cases, however, high temperature, great restlessness and nervous excitement have shown themselves. In some, this disturbance subsided in one or two days; in others, fever continued for three or four, or even five days. Provided the child—and most of them have done so, nourished well—I have not permitted myself to be greatly alarmed by the presence of some fever. In a considerable number of cases, after four or five days, leakage of fluid from the sac develops. This is very alarming and may portend a fatal issue, but in at least three of my cases this leakage, after persisting for days, has finally been stopped and the child recovered entirely from the operation.

The proximity of the field of operation to the rectum and the constant danger of contamination of the wound by urine or feces demand the most sedulous care to avert such a disaster. Once permit the wound to become infected and the chances of a secondary meningitis are multiplied.

Reference has already been made to the large "secondary mortality" within two months of the operation and after the wound is

entirely healed. These deaths are due, generally, to intestinal disturbances, and must, it seems, be considered as a part of the operative risk. Certain fatalities, as in one of my cases, occurring seven months after operation, from acute pneumonia, should not, it seems to me, be charged to the operation for spina bifida, but should be regarded as a part of the ordinary infantile mortality.

The records of my experience with this congenital defect in development are given in the following brief histories:

Case 1. The child was ten days old when I first saw it in 1905. It was a male child, well nourished, and with no deformity of the feet or evidence of hydrocephalus. In the sacro-lumbar region there was a tumor about the size of a small orange, translucent, marked by the central cicatrix which we expect in meningo-myelocele, and with a sac so thin that it looked as if the slightest carelessness in handling it would result in rupture. I advised that we wait as long as possible before trying to operate, but by the time the child was three weeks old ulceration had commenced and the parents brought the child to the city for me to operate.

Under chloroform anesthesia and with the assistance of Dr. J. D. Bloom I made an eliptical incision around the base of the tumor and tried to dissect away the skin before opening the sac, but so delicate were the tissues and so close was the fusion of skin and membranes that in a very short time the sac was penetrated by the knife and the spinal fluid escaped. Finding it impossible to restrain the fluid, I slit up the sac without further delay. Very little shock was caused by the escape of the fluid. The cauda equina was adherent to the sac wall, and had to be dissected free, a number of nerve fibres being sacrificed in the process. The opening into the canal was quite large, involving at least three of the arches, and the skin and membranes were so densely adherent together that I simply sutured the edges of the cleft together with three rows of catgut sutures, after replacing the cauda equina in the canal.

The baby went back to bed in excellent condition, but in a few hours it had a rise of temperature to 103° F., and became very nervous. By next morning, however, it was in good condition, temperature down, nourishing well from the breast, and having no trouble except frequent desire to move the bowels. On the fourth or fifth day I was distressed to find that the wound, which had up to this time done nicely, showed some irritation, and on the following day there was leakage of cerebro-spinal fluid. I feared that this was the beginning of the end, but by touching the spot with lunar caustic and using every precaution to prevent infection I was fortunate enough to see the leak stop and the wound heal nicely.

During this time I thought I detected a tendency to bulging of the fontanelle, but I could not be sure of it, and certainly the baby seemed to be in excellent condition. About three weeks after the operation the child was sent home with the wound healed, except for a small superficial ulceration at one point of the line of incision. Within a few days this was entirely healed. All along, however, the baby had shown a tendency to disturbance of the bowels. The stools were too frequent, and greenish

in color, containing mucus. About three weeks after it had reached home it developed a severe attack of entero-colitis, with high fever, and this was complicated with urinary suppression, which soon ended in death.

Case 2. Jerome B., age two months, was admitted to my service at the Charity Hospital on February 22, 1906. It is the first child, and the parents are both in good health. The baby is small, but is breast-fed, and seems well nourished. There is no sign of paralysis or hydrocephalus. The child shows no cerebral irritation. The bowels and bladder are regular in their action. The infant sleeps quietly, and is not particularly fretful when awake. There is a large, translucent tumor in the lumbo-sacral region, with the usual cicatrix in the centre. The sac is very thin and has an ulceration beginning on it, and looks as if it might rupture at any moment. Pressure reduces the size of the tumor and makes the fontanelle bulge. Diagnosis: Lumbo-sacral meningo-myelocele. On February 28, 1906, under chloroform anesthesia, a part of the fluid was withdrawn by aspiration and an eliptical incision was made around the base of the tumor, going through the skin only. This was then dissected away from the sac proper with care. Not much difficulty was experienced in doing this, but before it was completed the sac had been opened and the rest of the fluid escaped. There was no shock, the pulse remaining excellent. The cauda equina was attached to the wall of the sac and had to be dissected free. The opening into the spinal canal was small, not much larger than the end of the little finger. I replaced the cauda in the canal, but was obliged to use a plug of gauze on the end of a pair of artery forceps to retain it in the canal. On this account I treated the sac as I would the sac of a hernia, simply transfixing it and ligating it with a stout chromicized catgut ligature. The muscles and fascia were brought together across the opening into the spinal canal, and the skin was sutured with a sub-cuticular suture of fine catgut. Over all a collodion dressing was applied, and the baby was sent back to the ward. There was no shock. The child appeared to be in as good condition as before the operation. The subsequent history was uneventful. There was no fever, no restlessness, no disturbance of the bowels.

On March 7 we found some irritation of the skin suture line, due to soiling with the urine, which we had been unable to entirely prevent, but this quickly subsided, and on March 18 the child was discharged.

In the beginning of May the child was presented before the meeting of the Louisiana State Medical Society. It appeared in perfect health, fat, rosy, and with no symptom of disturbance of the brain or cord functions. On August 16, 1906, I saw the patient again. It is a splendid specimen of healthy infancy; weighs 19⅞ pounds. It is now seven and one-half months old.

Later history: Seen when six years old. Robust, but with incontinence of urine and feces.

Case 3. Ethel B. was brought to my office on July 1, 1906, when six days old. The child presents an occipital tumor (meningocele). The tumor has been partly reduced, but it has been tense, and "twice its present size." The skin seems pretty strong and does not seem likely to rupture. I advised that it be kept powdered with an antiseptic powder, protected by a pad, and that we wait for a time before operating. The parents and the physician in charge were very anxious to have the operation done as soon as possible.

July 24. Child was brought over by the physician in charge. Operation was decided upon, and done to-day. The tumor is about the size of a hen's egg. Chloroform anesthesia. In the beginning the child exhibited an alarming cyanosis, due in part to the position partially on the face and partly to traction on the tumor. This, however, passed off, and the operation was continued without further unpleasant incident. An eliptical incision was made around the base, the skin dissected from the sac, and the pedicle, which was small, being freed, the neck of the sac was ligated with a stout catgut ligature. The sac was cut away and the skin brought together with catgut. Recovery from the operation was uneventful. The baby took the breast readily, slept nicely, had no fever or other complications.

August 1. Baby discharged to-day. Has done splendidly. Weight on admission, 10¼ pounds; weight to-day, 10¾ pounds. It appears to me that there is some evidence of slight hydrocephalus.

August 13. Baby brought over to-day. Weighs 12 pounds 6 ounces. Looks splendidly, except that head appears to me too large. Circumference of skull, 17 inches. Mother insists that the head is no bigger than it was, but I am not entirely satisfied. The cranial sutures are very widely separated; veins of scalp are large and conspicuous. I order daily inunctions of mercurial ointment, mitigated one-half with vaselin.

May 31, 1907. Perfectly well. No protrusion of sac. Head circumference, 19¾ inches. Intelligent. Weight, 18 pounds. Later: Perfect control of bowels and bladder.

Case 4. This baby was delivered by a midwife. In the course of delivery a very large, thin-walled meningo-myelocele in the sacro-lumbar region was ruptured, a large hole being torn in it. A physician, who was summoned, promptly had the little thing bundled up and brought to the Charity Hospital, where it was seen by me as soon as it arrived. I had it conveyed to the operating room at once, and prepared to excise and suture the sac. The child had a club-foot, equino-varus. There seemed to be no shock as a result of the rupture of the sac. Operation was done under chloroform about six hours after its birth. The sac was trimmed off and sutured with catgut. There was no shock. Patient went to the ward in excellent condition. I predicted the development of hydrocephalus, in which I was not disappointed. The wound did well except for some superficial supuration due to contamination by discharges from bowel before and after operation. However, it was about ten days before death occurred, with symptoms of advancing intra-cerebral pressure. This was a case unsuited for operation, except under the circumstances in which it was done. The sac was torn widely open; it was contaminated by a bowel movement which had occurred, and it seemed justifiable to at least cut off and sew up the opening, in spite of the tender age and co-existing club-foot.

In this, as in the other three cases, I was impressed by the way the infant bore the operation itself. There was little shock, and it did not appear to make any difference whether the fluid escaped gradually or all at once.

Case 5. Loree E, age twelve weeks, was brought to me on June 15, 1907, on account of a large lumbar spina bifida. First child; is breast-fed, and seems very robust. No evidence of paralysis or other complication. On May 31, 1907, I did an incision of the sac, which proved to be a meningo-myelocele. The sac was sutured with chromic catgut, the fascia around the opening brought together with heavy chromic gut, and

the skin sutured. Wound dressed with dry gauze, secured by Z.-O. plaster. No shock. Ethyl chloride-ether anesthesia.

Following the operation the child showed great restlessness, emitting a constant, excited cry, such as I have heard in cases of cerebro-spinal meningitis. The temperature rose by 7 p. m. to 103° F. At 10 p. m. the temperature had fallen to 100 4-5° F. During the first twenty-four hours 180 grains of bromide of potash and seven hypodermic doses of morphin (gr. 1-172 each) were given. From this time on the case progressed beautifully, nourishing well at the breast and sleeping quietly. The skin flaps were poorly nourished, and a superficial slough developed, from which there was only a slight discharge. But on June 29 one of the deep chromic gut sutures was removed and the following morning it was evident that leakage from the spinal canal had been going on. In spite of this, the baby was allowed to go home under the care of its family physician.

August 19, 1907. A letter to-day informs me that the leakage quickly stopped and the wound is entirely well. There is no hydrocephalus.

October 7, 1907. Baby is brought to see me to-day. Looks splendidly. No evidence of hydrocephalus or paralytic disturbance. Weighs 17¼ pounds.

August 24, 1908. Child is seventeen months old. Picture of health. Weighs 22½ pounds. Is beginning to walk, but has a decided valgus in both feet. Rubber adhesive strapping, and a lift of one-eighth inch on inner border of soles ordered to relieve the deformity.

June 14, 1909. Child is brought for inspection. In splendid health. Is twenty-eight months old. Has never had any spasms, and shows no hydrocephalus. She does not walk well alone as yet, and is said to drag her right foot some. Valgus deformity is pronounced in both feet. Lift on inner borders of shoes continued.

July 23, 1910. The child is still in splendid health and is very intelligent. No hydrocephalus; sphincters under perfect control; profuse growth of hair over operation scar, which is firm, but exhibits slight fluctuation to palpation. The valgus is still pronounced. I order a pair of Thomas heels for her shoes.

September 4, 1911. The child is a perfect specimen, except for the valgus deformity of the feet.

December 16, 1916. Loree is now ten years old. She enjoys perfect health, is very bright, and has no trouble with either bladder or rectum. She is brought to me on account of slight tenderness of the skin at the site of operation, but I do not see that there is anything to be done about this. It is to be noted that the valgus has entirely disappeared in the left foot and that the right foot is much improved, and her mother states that the position is steadily getting better.

Case 6. Jessie B., aged twenty days, first child, weight 6½ pounds, was brought to me on October 11, 1907, on account of a lumbo-sacral spina bifida, whose thin, transparent sac is beginning to ulcerate. Operation at noon on October 12, 1907, revealed a meningo-myelocele. The fibres of the cauda equina had to be cut in order to replace them in the canal. The membranes were easily separated and closed with chromic gut, but much difficulty was encountered in closing the skin. In spite of undermining, and longitudinal incisions about two inches to either side, the wound was closed only under decided tension. The whole procedure occupied fifty minutes, and the baby stood the ordeal very well, although at times a good deal of anxiety was caused by its peculiar

breathing. Just after the operation there was a decided tendency to convulsions, for which ten grains of bromide were given by rectum. I do not know how much of this was retained. Morphin, gr. 1-150, by needle also given.

October 26, 1907. Owing to the tension on the sutures, the skin wound pulled open, but the membranes have remained tightly closed. Under daily dressings with balsam of Peru and castor oil, the wound has closed, except for an area about the size of a silver dime. The child is discharged to her home to-day. She weighs 9¼ pounds. Within a short time the skin healed entirely.

December 1, 1912. Jessie is now five years old. She is a well-developed, rosy girl. Shows evidence of slight hydrocephalus, which has been, however, entirely arrested. She does not control either her urine or feces. She presents a severe varus deformity in the left and an equino-varus in the right foot. There is an ulcerated spot on the front of the left ankle, the result of a neglected burn, and there is an inflamed spot on the right ankle, too, apparently due to injury in crawling. These prevent any attempt to correct the feet at this time.

Case 7. [The exact date in this case has been lost.] Baby D., age about two months, was brought to me in the latter part of April, 1908, on account of a lumbar spina bifida about the size of a small orange. The tumor presented the usual "egg-shell" translucency over a portion of the sac and proved to be a meningo-myelocele. The operation was conducted in the usual manner and without special incident. Convalescence was uninterrupted, and the child is discharged in about —— weeks. About six months later word was received from the father that the baby had died of an attack of acute pneumonia a few days before.

Case 8. Lloyd E. D., age twelve days, was admitted to my service at the Charity Hospital on January 9, 1909. He presented a large dorso-lumbar spina bifida, with very thin wall already ulcerating and threatening to rupture at any moment. On January 11, 1909, the usual operation of excision of the sac was done. The tumor proved to be a meningo-myelocele. The child died on January 18, 1908.

Case 9. Anthony R., aged six months, was admitted to the Charity Hospital on June 8, 1914. He presented a lumbar spina bifida. Robust, well-nourished baby. Operation was done on the next day. The tumor proved to be a meningo-myelocele. A few days after the operation, leakage from the sac began and persisted. Broncho-pneumonia developed and the baby died on June 22, 1914.

Case 10. Bruce M., aged three months, a fine, well-nourished baby, bottle-fed, was brought to me on December 30, 1912, on account of a large lumbo-sacral spina bifida, which proved at operation to be meningo-myelocele. The sac was thin and transparent, and presented ulceration. Operation was done on January 1, 1913. The sac had been increasing rapidly in size, but there was no evidence of hydrocephalus. The right foot presents a congenital valgus, the left an equino-varus deformity. The child stood the operation well, and convalescence was uneventful.

This child has developed into a magnificent specimen, so far as his general health is concerned. No hydrocephalic symptoms have shown themselves, and the intelligence is above normal. During the beginning of his second year, manipulative treatment of the feet was carried on, but the deformity in the left foot proved very resistant. There is partial paralysis of the muscles of the leg, and there is anesthesia half-way up to the knee, in addition, there developed an enlargement of the lower end

of the tibia, which seemed in part responsible for the failure to correct the varus. In May, 1916, a partial cuneiform tarsectomy was done to correct the malposition. Healing was by first intention, and was made notable by the complete absence of any pain connected with the dressing of the wound or handling the foot. In spite of everything, however, and probably because of the motor and sensory paralysis, the child is unable to walk. There is a lack of control over the bladder and bowel. Otherwise his physical and mental condition is superb.

Case 11. Norman R., aged four weeks, was brought to me from Texas on May 29, 1916. Breast-fed, and well nourished. He presents a lumbar spina bifida, measuring perhaps four inches by three. The tumor is flattened and has a broad base. The defect in the vertebral arches is a large one, involving several of the vertebrae. There is no hydrocephalus. Operation done on May 20, 1916. During the ten days following, the baby had more or less fever, and showed evidence of developing hydrocephalus. The wound, however, healed nicely, and on May 31, 1916, the case was sent home.

No further information could be obtained as to the progress of the case until December, when I was informed that the little one had died a few days before. What was the exact cause of death I do not know, but I infer that the hydrocephalus continued to increase.

Case 12. A. P. was first seen by me in 1910 while suffering with an attack of typhoid fever. He presented a spina bifida occulat in the lumbo-sacral region. During September, 1916, he was brought to me on account of a very severe scoliosis, convex in the right lumbar region. He has no control over the sphincters, and is unable to use his lower limbs to walk. He is very intelligent, and is in every other respect healthy and robust.

DISCUSSION ON THE PAPER OF DR. FENNER.

Dr. E. Denegre Martin, New Orleans: I hope some of the members will have something to say in regard to this very interesting and important subject presented by Dr. Fenner. It is one of that class of cases we have for years looked upon as hopeless, especially in the preaseptic age. Nearly every case died from some cause, and usually from infection. I have had two cases myself, and both died. From what has been said and reported here to-day, I am confident that the first case died from infection and the second from loss of fluid, which continued unabated for about two weeks.

Several interesting points have been brought out by the doctor, and among them this one: These patients, without operation, die. He has saved 40 per cent by operation. Are we, then, in a position to say that these patients should not be operated on? I believe, with our improved technic, especially with the conditions under which we operate and are surrounded, together with every precaution for asepsis, we should attempt to save the children. I feel differently about this matter since hearing this paper. I was under the impression that if we saved these children we were saving hopeless cripples, but I believe, from what I have heard, we certainly should give them a chance.

There is no doubt in my mind that the great mortality in the past has been due to infection; therefore, we have removed one obstacle. Another danger is in the anesthetic. We are using to-day ether, which is certainly better than chloroform. It is given by experts, because we have

found it is not a simple matter, and those who are doing any amount of surgical work to-day must have an expert anesthetist at hand who thoroughly understands the situation.

The point I want to impress upon you, and which has been impressed upon me, is the fact that an unusual experience of this kind is rather remarkable. It is remarkable that any one man should have had fourteen cases of this kind, and with 40 per cent of cures. I believe that we should look upon these cases very differently in the future from what we have in the past.

I congratulate Dr. Fenner upon the work he has done. He has gone into the subject thoroughly, and I thank him personally for his effort.

Dr. R. L. Jones, Rayville: I would like to ask Dr. Fenner a question for my own information, and possibly his answer may be worth something to other members of the Society, namely, just what factor, if any, syphilis may have had in these cases?

During the last seven or eight years I have had two cases of spina bifida, both from syphilitic mothers. One lived about two months, became very much jaundiced or icteroid, and soon died. The other lived about three months and developed symptoms of hydrocephalus and promptly died. One of these children had a rather large tumor at first, while in the other it was not so large, and progressed for three months during its life. They were typical strumous children and had continuous sweating about the forehead, which we see in strumous subjects.

During the reading of the doctor's paper the idea occurred to me that he could tell us possibly if syphilitic infection amounted to anything as a causative factor.

Dr. J. T. Abshire, Leroy: I want to ask one question in relation to a point the essayist did not mention. In a case I saw there was an open canal over the lumbar region, with no integument whatsoever. The surface was absolutely raw. The child died in seven weeks from loss of cerebro-spinal fluid. I would like to ask if that kind of case is operable, and if so, when is the proper time to do the operation?

Dr. Fenner (closing): In regard to the etiology of spina bifida, I made no attempt to go into it so far as contributing influences play a part. We all recognize in the etiology of congenital deformities of every kind that there are three factors which, in any large group of cases, invariably seem to have influence. One is consanguinity between the parents, another is syphilis in the parents, a third is alcoholism. Any of these three factors predisposes to congenital deformity of all kinds, and I believe in many cases a syphilitic family inheritance may have something to do with the germinal defect, which is the real cause of deformity.

In regard to the case related by Dr. Abshire, I am astounded to hear of any case with an open canal in which no integument covered the spinal cord at all, and the child survived seven weeks. I would say that case apparently should fall under the head of partial spina bifida without spinal hernia, the spinal cord exposed, and it has been my belief that such cases inevitably die within a short time after birth. The survival of such a patient for seven weeks is extraordinary, and I would not believe such a case would fall under the head of favorable operative cases.

EARLY MANIFESTATIONS OF LEPROSY.*

By RALPH HOPKINS, M. D.

The first evidences of leprosy develop gradually and cause little or no discomfort. It may happen that a macule situated on some inconspicuous region of the body may escape the attention even of the individual affected, and is hardly ever recognized by him as being malignant. Symptoms, such as pain or itching, which would attract his attention, are usually absent, and, after discovery of the spot, he is quite likely to regard it as innocuous, referring it, in his judgment, as a "liver spot," or something similar. It so happens that most cases presenting for diagnosis are well advanced as potential factor for the spread of contagion, and prompt diagnosis is imperative. The large percentage of reported cases, as closely related as parent and child or brothers and sisters, emphasizes this necessity, inasmuch as a leper living in a large family is subjecting to infection those whose heredity makes them most liable to contract the disease.

It is noteworthy that the percentage of leprosy is much higher among men than among women, and that no age is exempt, except early childhood or infancy. Not nearly as many negroes as whites, and among the whites a large percentage have family histories showing leprosy.

History.—The history of its previous occurrence in a family is of service in focussing attention on the possibility of leprosy in a given case, but when this hint is not given one is not prone to be on the lookout for this disease, and to be confused by the history of some accident or injury being the cause of leprous lesions. Except in those cases in which the patient has some knowledge of leprosy, in which there may be a wilful purpose to deceive, the average does not regard his first symptoms as of serious importance, and usually attributes them to some trivial cause. Suspicion should be aroused by the history of persistent numbness in the hands or feet, particularly the fingers of the left hand, and most particularly the little finger of the left hand, if associated with some atrophy of muscle and consequent contracture of the flexor tendons. A macular eruption of long standing, coffee-colored, reddish or purple, should make one bear in mind the possibility of leprosy, particularly if the lesion be not scaly and be large in size.

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A patient's own diagnosis of ringworm or liver spots should not be accepted merely because a macule happens to have a circinate border or because it is liver-colored. Either symptom is equally characteristic of leprosy.

TYPES.—Two well-defined types of leprosy exist, depending on the habitat of the bacilli: skin and nerve. A combination of these two is usually referred to as the "mixed type." The skin type, which also has been called macular, nodular and tubercular, presents macules, nodules, and infiltrates patches on the skin. There usually is altered or abolished sensation in these lesions, and in advanced cases their occurrence on the face gives rise to the characteristic "leonine" appearance. In the nerve type, circinate macules may be found, but no nodules or infiltrated patches, and the sensory disturbances are not confined to individual lesions, but may occur over the entire region supplied by an affected nerve. This type has also been called anesthetic, maculo-anesthetic, and trophic. It is in this type that mutilation and deformity of the hands and feet occur, while the skin of the entire body may remain free of lesions, with the exception of an occasional rather evanescent macule. The pure type of nerve leprosy is far more frequent than the pure type of skin leprosy. Indeed, pure skin cases in the advanced and terminal stages are rare, as it often happens that nerve symptoms develop after the incipient stage, thus changing the type to mixed. On the contrary, it is not unusual for nerve cases, even when progressing to a fatal termination, to remain free from nodular skin symptoms.

The mixed type, with the involvement of both skin and nerve trunks, will include a greater or lesser number of cases, according to the strictness with which the classification is applied. Thus, a case with the nerve symptoms markedly preponderating over the skin symptoms strictly belong to the mixed type, but it is more usual to classify such a case as nerve leprosy, to prevent the greater part of all cases from falling into the class of mixed type. The tendency of leprosy in advancing stages extending over long periods of time (sometimes thirty or forty years) seems to be towards a gradual unfavorable progression of nerve symptoms, while skin symptoms often progress unfavorably only up to a certain point, and then commence to disappear. In a certain sense, skin evidences may be regarded as self-limited—that is, that if a case of nodular leprosy does not succumb during the first eight or nine years, the skin lesions are quite likely to disappear, and a mixed type become

trophic. The sequence, therefore, as regards changes in type, is that a type at first purely nodular may develop into a mixed type, and this mixed type in the course of many years may become purely nerve or trophic. Cases which at first are purely nerve are not nearly so liable to a change of type.

Sensory Disturbances.—The work of Head and Rivers in differentiating sensory cutaneous fibers into epicritic and protopathic offers a new angle from which to study the sensory disturbances in leprosy. This classification is based on the sensation lost on section of a nerve and on the order in which the cutaneous sensations of heat, cold, touch with light pressure, tactile discrimination, and pain are separately recovered with the regeneration of the cut nerve. The first fact brought out is that there exists, distinct from the true cutaneous sensation, a subcutaneous sensation, which is probably mediated through sensory fibers contained in nerves to the muscles, which carry sensations of heavy pressure, pain and position.

The terms epicritic and protopathic are applied only to the true cutaneous sensations.

The epicritic include sensations of heat, with differentiation between small differences of temperature, sensations of cold (small differences), sensations of touch, produced by light pressures, and tactile discrimination.

The protopathic include sensations of heat (extreme differences), sensations of cold (extreme differences), and pain. The protopathic fibers regenerate much more rapidly in a cut nerve than do the more finely discriminating epicritic. The evidence from a series of nerve cases now under observation at the Lepers' Home points, up to the present time, to a loss of epicritic before protopathic sensation, with the notable exception of pain. The majority of the cases show early loss of tactile discrimination, evidenced by an inability to distinguish whether the affected region is being touched by one or two points. If, for instance, even with as rough an instrument as the two points of a pair of scissors, an affected area is touched, the sensation of being touched by a single point is produced, even when the points are sufficiently far apart to give on a corresponding unaffected area of the body, a distinct sensation of two points. Early loss of epicritic sensation is also evidenced by inability to feel the light pressure of a piece of cotton drawn across the affected area, and by inability to distinguish between small differences of temperature.

The protopathic sensibility to extreme variations of heat and cold seems in these cases to persist longer than all the highly, the more differentiated epicritic sensations. This is not surprising, since, if the protopathic regenerate more easily after section, they may be regarded as of a hardier type, and consequently more resistant to the gradually increasing interference with nerve function.

In regard to the deep cutaneous sensibility, there seems but little doubt that it persists even after loss of the protopathic sensations.

The exception, previously noted, concerning pain, which is a protopathic sensation, but which is lost very early in leprosy, is exceedingly interesting, if taken into consideration with the fact that the nerve-endings mediating the pain-sense lie most superficially in the skin (Howell), for leprosy very strikingly has for its favorite locations on the body the most exposed surfaces.

A distinction must be made between the sensory disturbances which occur in the nerve type and those occurring in the skin type. In the former, the loss of sensation may involve large areas, being limited only by the distribution of the affected nerve or nerves. In the latter, the loss of sensation is distinctly limited to the lesion (macule, nodule or infiltrated patch) occurring on the skin. In the nerve type, skin apparently healthy, is anesthetic; in the skin type, the actual lesions only are anesthetic and the areas of healthy skin between them are normal as regards sensation.

In the nerve type the terminal branches of the left ulnar nerve are most frequently affected in right-handed persons, the tip of the little finger usually being the first area to show loss of sensation. Impairment of sensation gradually, sometimes in the course of many years, invades that part of the two adjacent fingers that are supplied by the same nerve, and at the same time spreads up over that part of the hand and forearm supplied by the ulnar nerve. It is not unusual for the loss of sensation to be so clearly defined as to mark distinctly the distribution of the nerve involved. The progression of insensibility with the lapse of time shows very clearly in the region of one nerve distribution, in the less complete impairment of sensation in the tip of the finger than in the hand and arm more recently involved. Other nerves may be involved in the early stages, and almost always are in advanced and terminal cases. Almost always the hands or feet are affected before any other part of the body. Anesthesia is a very late development, as is also motor paralysis. A very characteristic evidence of nerve leprosy is the

palpable enlargement of affected nerves, and the occurrence in them of nodules easily felt through the skin. It is not unusual for the ulnar nerve to attain the thickness of a man's finger.

Trophic Disturbances.—An early result of impaired nerve function is manifested in atrophy of muscle. When this occurs in the hands it results in a contraction of the flexor tendons, which prevents full extension. This deformity usually occurs first in the little finger of the left hand, the other fingers becoming flexed later and giving use to the so-called "claw hand." The thumbs usually resist this tendency for a longer time than do the fingers, but may ultimately become flexed at the joint of the distal phalanx.

Skin Lesions.—The macular lesion is the most constant of the early skin manifestations in all types of leprosy; bullous eruptions are rare, and tubercles or nodules are usually preceded by macules or infiltrated patches. The occurrence of nodules as the first skin evidence is not nearly as common as that of macules, and it not infrequently happens that the nodules develop in the sites of pre-existent macules.

Macules.—The number of macules found in a given case is very variable, as is also their size. A single lesion no larger than a dollar may be found, or as many as thirty or forty more. Some may be as large as the palm of the hand, and some even larger. The great size is an important feature, as it eliminates from diagnostic consideration the macular eruption of syphilis. The color varies from a light brown *("café au lait")* to a dusky purplish red, depending on the extent to which inflammation exists. Scales are unusual, except after acute inflammation, such as occurs during attacks of lepra fever. The macules most often associated with the skin leprosy are uniformly colored, but in those associated with nerve leprosy the color may exist only on the outer border, in the shape of a ring, presenting in its center rather an atrophy than an excess of pigment.

In the type in which the color is uniformly distributed over the entire macule, two extreme varieties of chronic lesions can be recognized, dependent on the degree of associated infiltration. In the first variety little or no infiltration exists, and the spot presents a light brown stain, level with the skin, rather irregular in contour, with a border less likely to be distinctly marginated than in the second variety. In this latter, marked infiltration exists, with elevation of the patch above the level of the surrounding skin. The

borders are already marginated and the color is a purplish red. Between these two extremes in the organization of the lesion in these two varieties there are many grades of infiltration, giving rise to variations in color and shades of color, the extent of elevation and the clearness with which the border is defined from adjacent normal skin. Their location may be the buttocks, face, trunks or limbs, and they are usually not bilateral or symmetrical at first, but generally become so as the disease progresses unfavorably. During attacks of lepra fever intense inflammation may occur in these lesions, with associated pain, heat and swelling, and increase in the degree of redness. A third variety, evanescent in character, greatly resembling a toxic erythema, bilateral and symmetrical, has its favorite location on the extremities, and closely resembles erysipelas in its appearance and duration.

The type associated with the nerve leprosy in which the pigment is not uniformly distributed is more evanescent in character than are those associated with the skin type. This, together with their circinate arrangement, is in conformity with the resistance which the skin offers to the lepra bacillus in this type. The lesions grow from the periphery, making larger and larger rings, and the atrophic center enlarge "*pari passu,*" maintaining a uniform width in the advancing band of eruption, with very much like the spread of ringworm of the general surface, which advances in an increasing circle like a prairie fire, the center no longer furnishing the proper food for the conflagration. The margin of this advancing border is always well defined and presents but little infiltration, and is coffee-colored or reddish. The central part of the macule is often whiter than the normal skin of the region, and looks atrophic. They may occur on any part of the body, but the hands and head are not as liable as they are to the macules of the skin type. Their favorite location is on the shoulders, legs, thighs, buttocks and forearms, in the order named. The coalescence of two or more of such ring-like macules produces curious, wave-like figures, covering, sometimes, very extensive areas with meeting arcs of circles.

Bullæ are very rare, and, when they do occur, rapidly become pustular; the knuckles of the fingers are their favorite location. Diagnosis of leprous bullæ, without other evidences, in skin and nerve, is almost impossible without microscopical examination.

Nodules in leprosy are found earliest on the most exposed surfaces of the head and dorsal surface of the hands. On the head

they involve especially the forehead, lobes of the ears, nose, chin and cheeks. The scalp is always free. The appearance of the first nodules may be irregularly scattered, but, as they continue to appear and develop, they become bilateral and symmetrical. Their size is from that of a pea to a marble. The color usually is a dusky, reddish brown, and the nodules are spherical in contour. The coalescence of nodules that produce the gross disfigurement of the face, characteristic of leprosy, occurs in advanced stages and is accompanied by loss of the hair of the eyebrows and head.

Microscopical Examination.—In regard to microscopical examinations, it is noteworthy that the acid-fast bacilli, which are the causative factors in the lesions of leprosy, can often be found in the nasal secretions, when even a careful search in sections from other regions is negative.

Conclusion.—In conclusion, the purpose of this paper has been to emphasize the very innocent appearance of the early lesions of leprosy, the absence of discomfort caused by them, and the ease with which diagnosis can be made if only care be taken to test for alterations in sensation in suspicious cases, and recourse to the microscope be had when necessary. The infrequency of leprosy, compared to other diseases in Louisiana, is not sufficient to justify the overlooking of the diagnosis, yet cases are often admitted to the Lepers' Home of many years' standing. It is not to be expected that there should be the same proneness to make the diagnosis of leprosy that there is to make that of malaria, but if we were all as suspicious of leprosy in cases presenting macules, nodules and sensory disturbances, as we are of malaria in cases of elevated temperature, the situation in regard to leprosy in Louisiana would be vastly improved.

AN OPERATION FOR HALLUX VALGUS.*

By EDWARD S, HATCH, M. D., F. A. C. S., New Orleans, La.

During the last few years four papers have appeared in the American literature on this subject. Dr. Metcalf went into a general discussion of the subject and tabulated fifteen different operations. Dr. Henderson wrote simply of the operative technic and advised the Mayo operation. Dr. Painter discussed the etiology and advised the Huter operation, plus the use of a metal splint to keep the proximal end of the phalanx from riding up. Dr. Field advised the transplantation of the tendon of the abductor pollicis from its usual insertion in the plantar surface of the base of the first phalanx to the periosteum covering the middle of the inner surface of the same bone. He only excises the bony projection of the head of the metatarsal bone. The main etiological factors are bad shoes, pointed, tight or short ones, or a combination of these errors. High heels also force the foot forward and relax the anterior arch. Hypertrophic arthritis is a causative factor, as is also gout. Some authors have claimed that patients with a congenitally long great toe are more apt to have bunions than people with normal feet, but in my experience this has not been observed. An intermetatarseum is of such rare occurrence as hardly to be considered. These patients usually have, with the bunion, a relaxed anterior arch with marked callouses under the metatarsal heads, and in some cases a plate designed to support the anterior arch will give some relief, but in all cases with much pain: operation is the only cure. The size of the bunion does not seem to be any index of the pain suffered by the patients, nor of the degree of hallux valgus present, and quite frequently I have been asked to operate for the cosmetic effect. Dr. Painter feels that hallux valgus is not an exostosis of the metatarsal head or its articulating phalanx, but is a lateral deviation of the great toe at the outset, accompanied by stretching of the inner capsular attachment and later by structural alterations of the articulating surfaces. The tendon of the extensor proprius pollicis becomes displaced to the outside of the joint, and with the angulation of the toe; its sheath becomes a pulley, which soon gives way under the tension, after which the tendon acts to still further increase the deformity. This is undoubtedly true in some cases,

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but the writer is sure that many of his cases show marked exostoses of the metatarsal head. As stated above, Dr. Metcalf has tabulated fifteen operations for the relief of this condition. The two in most common use are the Huter and the Mayo. The Huter operation consists in removing the metatarsal head with an osteotome or a gigli saw. This is done at right angles to the shaft of the bone.

DOUBLE HALLUX VALGUS. AFTER OPERATION

The Mayo operation removes most of the articulating surface of the head of the metatarsal bone, leaving enough to serve as a weight-bearing portion. The rongeur forceps, used in cutting off the head, are introduced at an angle of 75 degrees. A burseal flap is then tucked in over the cut end and sewed to the periosteum of the first metatarsal. Wilson removes the part of the metatarsal head that protrudes beyond the phalanx. Porter removes three-fourths of the head of the first metatarsal, at such an angle as to include the inner tuberosity, and tenotomizes the extensor proprius pollicis at the level of the joint. All these procedures have disadvantages which may easily be overcome. The operators who

believe that a congenitally long great toe favors hallux valgus feel that it is an advantage to shorten the toe, as the Huter operation does, but cutting off the head of the first metatarsal certainly disturbs the balance of the foot. This bone is one of the most important portions of the foot in standing and walking, and its removal weakens the foot and throws the weight on the outside. There seems to be no reason for turning in a bursal flap, as is done in the Mayo operation. If the case is aseptic, there never is any stiffness of the joint.

A middle ground between the Wilson and the Porter technic seems best, and I have been doing the following operation for the last six years. Previous to this time I did the Huter operation, and while this relieves the pain the foot is certainly not as stable, nor do the patients get to walking nearly as soon as after the operation to be described.

A curved incision is made over the metatarsal phalangeal joint of the great toe, with the base downwards. The skin is dissected back and the bursæ carefully removed. The head of the metatarsal is dissected free, and, with an osteotome, a cut is made half-way through the bone at right angles to the shaft, just back of the head. The osteotome is then removed and inserted in the center of the shaft and the inner half of the head chiseled off. Any rough edges that are present are then smoothed off. If the tendon of the extensor proprius pollicis is much shortened it is tenotomized or lengthened. This happens in a very small per cent of the cases. This leaves a good portion of the outside of the head to articulate with the first phalanx. The joint has not been injured, and all of the projecting part of the head has been removed. The leaving of half of the head, with its articulating cartilage, makes, to my mind, a better joint than we get by taking off the piece of bone at an angle. The subcutaneous tissue is united by catgut sutures and the skin sewed with silkworm gut. A pad of felt is put between the first and second toes and a light plaster cast applied, including the ankle, to protect the foot. The stitches are removed on the tenth day and the patient allowed up about the twelfth to the fourteenth day. This operation allows the patient to be walking in two weeks, and they are able in eighteen or twenty days to put on any ordinary shoe. It is very important for them to wear a shoe with a straight inside last, and Dr. Porter says, "If you cannot dictate the shoes, do not do the operation." Several of my cases

will not wear a proper shoe and seem to be very comfortable in their more stylish types. In some cases, when the anterior arch is much relaxed, a spoon-shaped plate made of very light steel, 22-guage, is neecessary for complete relief.

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DISCUSSION ON THE PAPER OF DR. HATCH.

Dr. J. T. O'Ferrall, New Orleans: This operation that Dr. Hatch has suggested is one we are frequently called upon to do to relieve the excruciating pain these people have. The operation I have been in the habit of doing is virtually the Mayo operation, or resection of the metatarsal head at an angle of 45 degrees, without turning in the bursa. In that way we do not preserve any of the cartilage, but we keep the toe in its over-corrected position.

I have not seen any of Dr. Hatch's cases, but if it is possible to preserve some of the cartilaginous surface of the joint it will be of service in the use of the foot. To any one who has done much foot work, you will realize the necessity of preserving the tripod upon which we take our weight—that is, the bases of the fifth and first metatarsal bones and the os calcis.

The only thing I could mention that Dr. Hatch did not bring out in his paper is the reason why so many general surgeons, in doing this operation, fail, and that is because they do not appreciate that this is a fixed deformity. It is not a temporary deformity which will disappear with resection of the metatarsal head, but you have to get over-correction of the deformity for the purpose of preserving the correction.

I remember seeing a case at the Touro Infirmary not long ago, done by one of the general surgeons, and he had a recurrence of the hallux valgus. The bursa had been removed; the position of the patient's foot was just as bad, and relief was not complete. This was due, unquestionably, to the fact that he had not over-corrected his deformity and kept it so as to preserve the proper alignment of the foot.

Another great mistake which is often made, especially by men who are not doing orthopedic surgery, is the failure to support the anterior arch. In all these cases, whether you operate or not, it is necessary, in the first two weeks, and possibly first two months after operation, to properly support the anterior arch. As Dr. Hatch said, you may make use of a plate. I find it much more difficult to support the anterior arch with a plate than a specially constructed pad. Of course, if you have a longitudinal arch also to support, you can only do it with a plate, using the plate for both arches. If the patient has relaxation of the longitudinal arch, a pad, properly constructed, will be more comfortable and efficient. If by this operation which Dr. Hatch has described we can resect only a part of the metatarsal bone and preserve a part of the cartilage of the joint, there would certainly be a much more useful joint

afterwards. I have never seen, however, any trouble from a simple resection of the metatarsal head. As long as you preserve the cartilage of the joint—that is, the phalangeal part of the joint—there is no danger of an ankylosis taking place. You know, cartilage and bone do not grow together; therefore you will not have ankylosis.

Dr. E. Denegre Martin, New Orleans: This operation appeals to me as one of the mechanics in surgery based on proper grounds. A great many operators do not understand the principle. There is practically a dislocation of the bone at this point from the short shoe pressing out the joint to the outer side of the foot.

I have always done the Mayo operation, and, so far as I know, the operations have been successful. I have seen some of the patients I have operated on several months afterward and others several years afterward, and the results were good. You bring the phalanx around, and it comes then squarely over the metatarsal bone, producing a normal condition of the foot. The Mayo operation not only shortens the toe, but you have a very much weaker joint. Dr. Hatch's suggestion, I think excellent, as it does away with this feature of other operations.

Dr. P. B. Salatich, New Orleans: There is one question that comes up in connection with this operation, and that is the painful scar afterwards. I would like to ask Dr. Hatch how he takes care of that, and where he makes the incision?

Dr. A. B. Nelson, Shreveport: Dr. Hatch can answer the question and explain that. The scar is very easily disposed of by making a crescent-shaped incision, leaving the base of the flap above, causing the scar to be just at the solar margin. You can get at it in that way without leaving a scar on the side of the foot or at the top of the foot.

I have done only a few of these operations. I have done one or two in which I have resorted to resection of the metatarsal head and have cut the ligaments holding the toe in wrong position, put a piece of gauze between the toes, very much, as the doctor has shown here, after operation is complete. At any rate, the principle is the same. I dissected off the exostosis and the bursa and transplanted a portion of the tendon on the outer side of the toe. As I have said, I put a piece of gauze between the great toe and next to the great toe, put the foot in a plaster cast, and removed the stitches in about ten days, with very good results.

Dr. Hatch (closing): In regard to a painful scar, I do not remember ever having seen one. Dr. Flower, some years ago, went in on the inside of the joint, made an incision, then dissected out the bone and made his operation without having any scar on the outside of the foot. That hardly seems necessary. If you keep the scar away from the box of the shoe, so that there is no pressure from that source, there will not be any trouble.

In regard to tenotomizing these tendons: Sometimes, when the toe is pulled well over to the outer side of the foot, you have to tenotomize the tendons, it does not matter when or where; you can tenotomize the plantar flexors without any trouble at all. Tenotomize whatever tendons you wish and put the foot in a good position.

In regard to the use of plates, it is harder to apply a corrective plate to an anterior arch than to the longitudinal arch. A light-weight plate is all that is needed, and one often makes the plate like a spoon, with the bowl of the spoon put back of the metatarsal heads.

It is my experience that more women come for this operation than

men, and in many cases we cannot control their shoes just as we would like to. They will wear good shoes for a short time, and perhaps in a few weeks they will put on the ordinary pointed toes with perfect comfort. But, of course, it is better to control the shoeing, if we can possibly do so. I quoted Dr. Porter as saying that we should not touch a case unless we can control their shoes. In this section of the country, however, where the women are so particular about the looks of their feet, they are apt to wear pretty shoes; and they will wear them in spite of anything we can do to prevent it.

COMPLICATIONS AND SEQUELLÆ OF INFLUENZA,*

By J. M. MOSELEY, M. D., Arcadia, La.

Osler has said it is astounding the number of people who have been crippled for years following attacks of la grippe. Where la grippe begins, it is not hard to say, but how and when it will end no one knows. Possibly there is no disease less complicated and more fraught with graver consequences than influenza. Any of the ills of mankind may attack a person sick of la grippe. It is to be remembered that there is a tendency of influenza to develop latent diseases into active ones and to make organic conditions more severe. Dieulafoy says that influenza bacilli grow better when the culture medium is inoculated with the staphylococcus aureus. It is reasonable to suppose that the staphylococcus aureus would facilitate the growth of influenza germs when planted upon an animal membrane. When we stop to think that the bacteria most often associated with the influenza bacillus are the streptococcus, pneumococcus and the staphylococcus, then it is that we no longer wonder that any complication may make itself present.

Broncho-pneumonia heads the list of complications of influenza. It may make its appearance like typhoid fever, or be ushered in with all the overwhelming symptoms of a violent pneumonia. Between these two extremes you may find broncho-pneumonia manifesting itself. True, it is the most treacherous complication of influenza. To-day your patient is doing nicely, to-morrow he is at the undertaker's.

Infection of some of the atria possibly comes next, the frontal sinus being the one possibly most often attacked. Acute otitis media is a common complication. Iritis, optic neuritis, has been

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reported. Acute mastoiditis, acute mania, by some the increase of appendicitis, has been attributed to influenza.

Septicemia has been demonstrated by the cultivation of this influenza bacillus in the blood. Meningitis sometimes offers itself as a complication, and is the most dreaded, requiring 90 per cent death rate of its victims. The urinary system is not left out. Acute nephritis, pyelitis and acute cystitis are frequently seen as complications, and hemorrhage from any part of the body, especially the nose and throat.

Grippe colitis, grippe gastritis, and enteritis have been described by some writers; also cholecystitis, lobar pneumonia, gangrene of the lungs and orchitis.

Influenza, likewise, pays its respects to the vascular system, leaving, as some of its complications, endocarditis, pericarditis and arterio-sclerosis. Myocarditis may be seen, and be the cause of sudden death. Functional disturbances are not uncommon; bradycardia, tachycardia, palpitation, phlebitis and thrombosis are sometimes seen.

It is to be remembered that organic diseases may become more severe from the slightest attack of influenza. I have seen a small albuminuria, with no other symptoms, become a rapidly fatal and uncontrollable Bright's disease following influenza. So it is with the various heart lesions, which have heretofore given us no cause for alarm. Influenza may whip any of these conditions into action, and at once we see a grave condition—a degeneration of the heart muscles, a dilatation of the cavities, and death.

If after an attack of la grippe you are dealing with an intermittent type of fever without any apparent cause, look for a superative otitis or examine the urine for a pyelitis.

Those of our patients who insist on being about too early especially lay themselves liable to tuberculosis, chronic pleurisy, chronic grippe of the lung, spondylitis, neurasthenia, enlargement of the bronchial glands and a neuralgia that may attack them any where.

If the public could be educated to know that influenza is a serious disease and that the slightest attack may cause some of the gravest complications with which we have to deal, no doubt then the danger of many of the complications would be minimized.

DISCUSSION ON THE PAPER OF DR. MOSELEY.

Dr. J. B. Elliott, Jr., New Orleans: I would like very much to say one or two words on this paper. In the past winter we have had a great number of cases of empyema in the City of New Orleans. Going back twenty-five years, in 1891, 1892 and 1893, we had epidemics of empyema following the grippe. It is a well-known fact throughout the world that in the years you have the most influenza, in those years you have most empyema.

The thing that worries me a good deal in the present time is that cases come to us now who have had the grippe in December and January. They come to us in April and May in a rundown condition and feeling badly. You will find in their lungs spots that you diagnose as tuberculosis. There is dullness on percussion, bronchial breathing, occasionally râles, with all the physical signs of tuberculosis. I have seen three such cases in the past year which I should have diagnosed as tuberculosis had it not been for the fact that they had had influenza in the past few months. Examination of the sputum in such cases discloses no tubercle bacilli, and they eventually clear up. It is impossible, from the physical findings, to diagnose these cases one from the other. So far as physical signs go, they show tuberculosis.

For the past few months we have been trying to unravel these cases. We have to tell them whether or not they have tuberculosis, but in many instances we cannot do it. I am afraid to use tuberculin in these cases, and have no faith in the Von Pirquet test in patients over fifteen years of age. Of course, I treat them for tuberculosis all the time, and apparently they recover.

One other point I want to mention. It has happened to us in the last four months to have had a series of twelve cases of intense neuritis following influenza. I remember dining one day with a lady, when she was taken suddenly ill with an intense pain in the back of her neck; she had to be carried upstairs on account of the intensity of the pain and to be kept under opiates for three days. The neuritis occurred more often in the left than in the right arm. Most of these cases lasted two or three weeks; most of them have "colds," as they call it, yet there was no coryza, only intense neuritis.

Dr. Allan Eustis, New Orleans: I should like to add a few words to what Dr. Elliott has said. We see a great many of these, cases with cough continuing. They are most difficult to differentiate from tuberculosis.

I do not agree with him in regard to the use of the Von Pirquet test. I believe in a negative Von Pirquet. I do not think Dr. Elliott meant to convey the impression that the Von Pirquet test is of no value; he meant a positive Von Pirquet. A negative Von Pirquet, as Dr. Durel has insisted, or several Von Pirquet tests, certainly do clear up tuberculosis.

I wish to call attention more particularly to mediastinal adenitis which we find in these post-grippal conditions. Evidently there is infection of the bronchial glands with the influenza bacillus, and these bronchial glands continue to enlarge and cause cough, irrespective of practically all sedatives you may give. The point we must remember, in my experience, is that four or five days' absolute rest in bed will relieve the cough better than any expectorants we can give. The practical side is, if you get a positive D'Espine sign in the back and a constant cough, rest in bed is indicated and fewer medicines.

Dr. Foster M. Johns, New Orleans: Inasmuch as Dr. Elliott has mentioned the laboratory in connection with these cases of influenza, I wish to say that all over the State calls come in to the effect that here is a patient who has a chill, who has been shaking for an hour and a half, with extreme prostration, a temperature of 104°, and we are asked to diagnose whether the case is one of typho-malaria or influenza. We examine some of the slides for malaria and we find the leukocyte count extremely low, with a large amount of leukopenia. All text-books give an increased leukocyte count for influenza. For these types of cases the picture at this time of the year comes mighty near enabling one to make a correct diagnosis.

Dr. William H. Harris, New Orleans: I have listened to Dr. Moseley's paper very carefully, and he has certainly very beautifully elaborated the great extent to which the influenza bacillus may attack the human body. In some of the cases there are mastoid complications. We know, from autopsy examinations, that it is possible to find the lesions of influenza throughout the human body. There are no limits. They recover in almost every case.

As regards Dr. Elliott's remarks about persistent broncho-pneumonic patches, I can quite readily realize what the doctor said—that such lesions would be difficult to differentiate from tuberculosis, with patches scattered here and there throughout the lung. I should think the physical signs would be almost nil, also the finding of the tubercle bacillus. Where such is not the case, the question of influenza comes up, and while we have difficulty from an examination it is possible very often to show the agglutination reaction to the influenza bacillus just as we have the Widal reaction to show up for typhoid or paratyphoid bacillus; so it is possible to employ the Widal test. We can make use of the agglutination test, testing the patient's serum against the influenza. It is possible to resort to the complement fixation test along the line of the Wassermann, except applied to influenza. This is a more tedious procedure and is fraught with more difficulties and delay. The lung lesion of grippe is one of lobular pneumonia; no matter how massive or large, it does not tend to produce as typical a pneumonia as is produced by the pneumococcus. The lesion extends not only into the alveoli, but it is an interstitial type of lesion. We can get an inflammatory condition occurring along the lines that exist between the alveolar structures. So in that way we can conclude that even such lesions may involve the lung at another period of time, all clearing up and be very exceptional from a physical diagnostic standpoint.

Immunity to influenza is very fleeting. It does not last for any considerable period of time. These patients are prone to develop subsequent attacks. Laboratory tests in the production of a specific serum have not been a success. As yet we have not attained that end. I think we might just add, for the benefit of the laboratory man, an additional test, namely, we still have the agglutination test or the complement fixation test.

Dr. Sidney K. Simon, New Orleans: We may as well recognise the fact that the grippe poison leads to neuritis, and in line with what Dr. Elliott said about the cases of neuritis developing after a simple influenza, I recall a case I saw this winter following an innocent attack of la grippe, but what was called in the olden times a typical case of gastralgia. A young man was taken down suddenly in his office. Three or four days after he had sufficiently convalesced to return to his work he was seized

with excruciating pain in the epigastric region; the pain radiated into the region of the liver, and when I first saw him, not always having been aware of the diagnosis of pure gastralgia, I was inclined to believe I was dealing with a gall-bladder or appendix condition. I followed the young man's case with a great deal of concern, because I was very much interested in his case in various ways, and I was very glad to find a simple dose of codein, one-half of a grain, was sufficient to relieve the young man so that he could go back to work that afternoon. The next morning, at the same hour, a similar attack occurred. The pain was so excruciating that he fell to the floor and rolled in agony. As I was not called at that time, he had recourse to one of the neighboring offices for a morphin injection. That was the end of the whole attack. The following two or three days he never had a repetition of the attack. I have considered this matter several times in my mind, and I am positive there is a non-inflammatory condition. We made a leukocyte count and found a normal condition. There was no fever at any time. I believe that this case represents a pure case of post-grippal gastralgia, a real neuralgia, not of the stomach, but of those nerves lying behind the stomach, the solar plexus and plexuses of nerve that have control over the unstriped muscular tissue in the upper abdomen. I thought I would relate the case, because it was a striking instance of what Dr. Elliott has seen in his cases.

Dr. G. M. G. Stafford, Alexandria: Just a word in regard to grippe appendicitis. The doctor mentioned in his paper that there is some probability of appendicitis resulting from grippe.

For the last few years we have had a great deal of grippe, or influenza, in Alexandria and around, and I have noticed that when it was in epidemic form there was a great increase in the number of cases of appendicitis. Operation revealed in these cases that it was a real appendicitis. I do not know that it is a coincidence, but I have noticed it particularly when we have had a great deal of grippe. I am inclined to believe myself that grippe has a good deal to do with the causation of the appendicitis.

Dr. Thomas E. Wright, Monroe: The liberal discussion of this paper is an index to the interest we hold in this particular disease, largely because we have just passed through an epidemic in this part of the country. It is a further index to the thorough and painstaking manner in which the author has covered the subject. The doctor has mentioned one feature I am inclined to believe is of more than passing importance. I refer to the weakness, depression and prostration that follow an attack of influenza. This feature of the disease is a severe tax upon the doctor's patience. His grippe patients return to the office from time to time with a constant and more or less continual complaint of weakness and depression. The shortness of breath on slight exertion is a part of the general process of weakness. It appears that very little can be done to overcome this, aside from a proper and sustaining diet, rest in bed, the usual tonics, with rather large doses of strychnin. Open air and sunshine, with congenial environments, are by no means unimportant.

Another point: One of the complications I would like to discuss is pneumonia. Not infrequently grippal pneumonias appear to be more or less central in origin, and day by day the physical findings grow more suspicious, until typical findings of pneumonic spots are easily demonstrable. I have seen such cases during the past season. The usual symptoms of a grippal pneumonia were present, with possibly only harsh

breathing over the affected areas. Within two to four days the same spots showed bronchial breathing and other signs of solidification. I mention this here because we are apt to be satisfied with one or two early examinations when there is a degree of uncertainty as to whether or not grippal pneumonia is present.

Dr. Moseley (closing): I want to thank the members for their free discussion of my paper, and to say a word or two about neuritis, which was brought up, from my own standpoint. I have just suffered from an attack of neuritis of the left shoulder following an attack of la grippe. The pain I suffered, no one knows. Dr. Nelson prescribed for me. When a patient comes to you complaining of some pain, and you have a history of grippe, give that man something. Don't say to him, "You have got neuralgia," and let it go. I found relief for three hours and then the pain would return. One is inclined to take aspirin, codein, morphin, etc., for the relief of the pain. Dr. Knighton and Dr. Nelson changed me over to some electrical treatment and I took it for a while. Acting on their advice, and taking electrical treatment, codein, rest and quiet, in time I got well.

I want to say something about what Dr. Eustis said with reference to rest in grippe. I think we overlook the bronchial glands a great deal. I have thought of these cases of cough in which we have grippe and we find no particular reason for the coughing. We examine these patients, and I have figured it out that it is the enlarged bronchial glands that cause the couging. It is well to remember that point.

Bacteriologists and pathologists are in doubt if you send specimens of various kinds to them, thinking they are dealing with malaria and most anything else.

As to appendicitis being associated with grippe or being a complication of it, I do not know. It is mentioned by some. Since grippe first made its appearance in this country some years ago appendicitis has been on the increase, and whether it is due to grippe or not I am not able to say.

OVARIAN TRANSPLANTATION—REPORT OF CASES.*

By WM. D. PHILLIPS, B. S., M. D., New Orleans, La.

At the meeting of the Texas State Medical Society last May I reported twelve cases of ovarian transplantation, collected from some private work and our gynecological service at the Charity Hospital. It is my purpose this evening to report further observation of the above-mentioned cases and also to add to the list three additional cases.

Ovarian transplantation has been practiced for the last twenty years. Dr. Robert T. Morris, of New York, was the first to make a clinical report on the subject. He reported two cases in the *New*

* Read before the Orleans Parish Medical Society April 23, 1817. [Received for publication June 11, 1917.—Eds.]

York Medical Journal, in 1895, one a woman, 26 years of age, from whom he removed both tubes and ovaries, and at the same time transplanted a small piece of ovary in the interior of the stump of the right Fallopian tube. She became pregnant a month later, but lost a well-developed fetus by abortion at the third month. Menstruation lasted for more than four years. His second case, a woman aged 20, with an infantile uterus, who had never menstruated, received an ovarian graft in the fundus of uterus, the graft being taken from a patient over 30 years of age. Eight weeks later she menstruated profusely for ten days, then six weeks later for five days, and continued regular for over five years. Since this report the literature has contained numerous reports of ovarian transplantation by Dr. Franklin Martin, of Chicago; Drs. Simpson and Chalfant, of Pittsburg, and Prof. Tuffier, of Paris. Some of the cases reported were of the hetero-plastic type, the majority being of the auto-plastic type—*i. e.,* the process of transplanting a portion of ovary to some other location in the same patient. This form seems to have been the most successful.

My experience in this work has been only of the auto-plastic type, and from a practical standpoint it seems the most feasible.

During the course of treatment and necessary surgical procedure in the more extensive pelvic infections, or cystic disease of ovaries, the question often arises, "Should we be conservative or radical?" Of course, the history and diagnosis of the type of infection will assist in making the decision and our desire to preserve ovarian tissue for the all-important function of menstruation will cause us to leave an ovary, or part of an ovary, not because we feel it healthy, but because we fear the symptoms of artificial menopause.

Resection of an ovary is often followed by hematoma, which produces symptoms almost as great as the primary condition. So much is this true that I have of late adhered to one or two methods of treatment—remove the ovary entirely, or puncture the small cysts and leave it alone. And it is for those cases in which the destruction of ovarian tissue is so extensive as to require removal that transplantation is of value. Briefly, the indications might be grouped as follows:

(1) Tumors or disease of ovaries occurring in young subjects under forty years of age, where the object is the relief of pain and the preservation of menstruation. (2) After loss of Fallopian tubes an attempt is made to maintain future possibilities of preg-

nancy. (3) After the removal of both ovaries an attempt to relieve patients of artificial menopause, or enable them to become pregnant.

As to the location or site of placing the graft, I have found that it differed with each investigator, some operators selecting the wedge-shaped opening, where the Fallopian tube was dissected away; others preferred the broad ligament, and yet others use the abdominal wall, placing the graft to either side of the median incision on the peritoneum—in the rectus muscle or in the adipose tissue on top of the fascia.

The indications for operation in the fifteen cases reported in this paper were for the relief of pain and preservation of menstruation. Five of these cases had previously been abdominal operations and two were cases in which resection of ovaries had been done. The technic of the operation was as follows:

After examination and determining that complete removal of both ovaries was necessary the ovarian vessels were ligated and ovarian tissue removed. Section of ovaries which were found to be free from infection and cysts were made with a fresh knife and the most suitable pieces were placed in normal saline solution at a temperature of 100°, the size of the graft varying from one-fourth of a normal ovary to sections one-sixteenth to one-eighth of an inch in thickness. In some cases we made use of a single piece and in others of several small sections.

The abdominal wall, just to the side of the median incision, was the site selected for placing the transplant, making a pocket to the side of the median line of incision in the adipose tissue, or underneath the sheath of the rectus. This location is preferred because of the ease with which you can remove the graft should it give trouble, and also because of the abundant blood supply and the fact that it is not so easily traumatized. No sutures were used to retain the graft in position.

The immediate post-operative condition of these patients was somewhat alike, several of them complaining of symptoms of artificial menopause, such as hot and cold flashes; others complained of swelling and pain in the region of the graft. The symptoms gradually diminished and in about three of four months the menstruation appeared, the hot and cold flashes disappeared, and the patients, to all appearances, seemed normal. It was noticed that the congestion and swelling of the graft preceded the menstru-

ation several days, and in some instances the graft was tender and painful. The absence of dysmenorrhea was particularly noticeable in those cases which had previously suffered pain during menstruation.

The life of the transplant varies in individual cases. In one of our cases the graft was active and functioning two and a half years after operation. Some observers have made similar observations five years after operation.

The question as to the advisability of transplanting ovarian tissue in cases in which either a supravaginal or complete hysterectomy was done has been much discussed, and the concensus of opinion is that ovulation without menstruation is useless. Consequently, it does not seem advisable to transplant ovarian tissue in cases in which it is necessary to remove the uterus.

In the fifteen reported cases, dating from December, 1914, so far as I know, ten menstruated after the operation. I have been unable to hear from four of them. One which did not menstruate was a case in which the uterus had been removed. One case (5) has stopped menstruating.

In conclusion, I wish to say that it is my belief that this form of ovarian grafting is not only safe and possible, but in suitable cases will produce the most satisfactory results. The ovarian transplant does perform the function of ovulation, which will continue for a number of years, and even at that time, if it does atrophy, the patient will have had time to adjust herself to the new condition and the symptoms of the artificial menopause will be less abrupt.

The selection of a superficial location for placing the graft is advisable, because of the ease in which it can be removed should conditions necessitate it.

The use of iodin or heat on the ovarian graft to destroy infection in suppurative cases is hardly necessary and does not seem advisable. In only one of such cases did we dip the graft in iodin. This case was one in which the graft had been placed in an unsterile container, and, before using it, iodin was applied. This patient menstruated two months after the operation.

I wish to thank Dr. C. Jeff Miller for the privilege of using some of his cases in this report, and also Dr. E. L. King for assistance in obtaining data.

CASE REPORTS.

Case 1. Mrs. A., age 28; four years before left ovary removed, right ovary resected and appendix removed. She seemed to have improved for a while; later began to suffer pain in right side, also dysmenorrhea. Examination showed enlargement of right ovary and retro-displacement of uterus.

Operation: April 29, 1915; trachelorrhaphy, suspension of uterus and right öophorectomy. Sections of ovary were transplanted in adipose tissue of abdominal wall on both sides of median incision.

Letter from patient June 15, 1915, says that she was relieved of pain, but does not mention menstruation.

Letter from family physician April 14, 1916, says that menstruation appeared two months after operation, with little pain. She has been regular every month since and has suffered no symptoms of artificial menopause.

Case 2. Mrs. J., age 32; two children, oldest 12, youngest 11 years. For the past five years has suffered pain in both sides of abdomen, marked on right side; bladder trouble for past three years.

Operation: October 26, 1914; curettage, trachelorrhaphy, perineorrhaphy, double öophorectomy for hemorrhage cysts. Parts of both ovaries were transplanted on peritoneum under rectus muscle to side of median incision. July 5, 1915, did not menstruate for five months; since then every month.

Case 3. Mrs. C., age 36; has had three children, oldest 17 years, youngest 13 years. Suffers abdominal pain and dysmenorrhea. Diagnosis—chronic salpingitis with adhesions; cystic disease of ovaries, five years' duration. Present trouble probably dates from miscarriage.

Operation: November 26, 1914; perineorrhaphy, removal of both ovaries and Fallopian tubes. Small portion of ovary transplanted left side of median incision. No further report.

Case 4. A. V., age 30; single; complaint of pain in abdomen, most marked on left side; evidence of Neisserian infection.

Operation: December 22, 1914; double salpingectomy and öophorectomy. Section of right ovary transplanted under right rectus sheath, just to side of median incision. Because of infection from pus in Fallopian tubes, small drain was placed in left side of abdominal wall.

January 18, 1915, patient returned for examination and was alarmed because both breasts were full of milk, also complained of hot flashes and dizzy spells, severe at first, but later diminishing.

April, 1915, menstruation appeared and lasted four days, some pain; was regular, free from pain and of normal duration every month after this, until November, 1915, at which time it lasted two weeks.

Examination December, 1915, ovary palpable in right side abdominal wall, size of normal ovary.

July 1, 1916. Menstruated regularly until January, 1917; then every two weeks; lasts five to six days. Swelling right of incision.

Case 5. Mrs. A. S., age 30; married; no children; one miscarriage; eight years ago left ovary and tube, also part of right ovary, had been removed. Cause of consultation at later date was because of severe pain in right side and dysmenorrhea; so severe that she was obliged to take sedatives.

Operation: November 14, 1914. Because of sclerosis of right ovary it was removed; also right salpingectomy was done. Part of right ovary was transplanted on the peritoneum at the side of the median incision.

May 7, 1916. Patient says she is feeling fine and menstruates regularly every month. Menstruation ceased December, 1917.

Case 6. Mrs. H. D. W., age 34; diagnosis, double suppurative salpingitis and ovarian abscess.

Operation: April 4, 1915; double salpingectomy and removal of both ovaries. Pus was found in both ovaries. Part of ovary was transplanted in adipose tissue of abdominal wall, on both sides of median incision.

May 12, 1915, patient menstruated freely for eight days. June 9, 1915, patient menstruated naturally for five days, and this continued every month afterwards. April 5, 1916, she feels very much improved and free from all previous symptoms; has gained in weight and has no symptoms of artificial menopause; she notices some tenderness in region of graft two days previous to menstruating.

Case 7. Mrs. J. P., age 22; abdominal pain and dysmenorrhea. Diagnosis, laceration of cervix, complete laceration of perineum, suppurative salpingitis.

Operation: June 29, 1915; trachelorrpahy, perineorrhaphy, double salpingectomy and double öophorectomy. One-fourth of right ovary transplanted in adipose tissue of abdominal wall to the right median incision; drainage used in left side of abdominal wall.

August 2, 1915, patient writes that she is feeling very well; no mention made of menstruation.

Case 8. M. S., age 36. Complaint, pain in abdomen, dysmenorrhea and metrorrhagia.

Operation: October 27, 1914. Because of leiomyoma of uterus and chronic salpingitis, a supra-vaginal hysterectomy was done, also a double salpingectomy and öophorectomy. A small section of ovary was transplanted in the adipose tissue at the side of median incision. No further report.

Case 9. Mrs. M., age 29. Complaint, pain in abdomen, most marked in right iliac region. One year before a double salpingectomy had been done; Neisserian infection.

Operation: November 29, 1915. Because of cystic changes in ovaries and adhesions, a double öophorectomy was done; small section of left ovary was transplanted on peritoneum under right rectus muscle, just inside of median incision. Patient menstruated normally in February, 1916, also March, 1916, and at that time was feeling very well and relieved of her symptoms.

Case 10. E. G. (colored), age 24; no children. Complaint, pain in abdomen, metrorrhagia and dysmenorrhea. Diagnosis, chronic salpingitis.

Operation: January 4, 1916; both ovaries and tubes removed; three small pieces of left ovary transplanted in adipose tissue at left of median incision. Drain placed in right side abdominal wall. No further report.

Case 11. E. C. (colored), age 26. Complaint, pain in right side, which has grown worse at times; suffers metrorrhagia, menorrhagia and dysmenorrhea. Two years before had right salpingectomy and removal of right ovary, also resection (partial) of the left tube.

Operation: January 25, 1916; removal of left ovary and transplantation of small sections of ovary under skin in adipose tissue to right of median incision.

February 1, 1916, patient reports that she menstruated from January 29 to February 1. February 5, graft enlarged and tender. February

11, slight discharge of blood, dizzy spells and hot flashes; dizziness seems to be getting worse. March 16, 1916, uterus in good position, freely movable; graft easily palpable in right side of abdominal wall; dizzy spells and hot flashes improving. April 24, graft enlarged and tender; hot flashes much better. May 1, graft much enlarged and very tender; hot flashes almost gone.

Case 12. Mrs. S. M., age 23. Complaint, pain in right side and dysmenorrhea. At a previous operation left tube and ovary were removed, also appendix.

Operation: February 29, 1916. Because of cystic condition, right ovary was removed; small piece of right ovary was transplanted in adipose tissue of abdominal wall to the right of median incision. No further report.

Case 13. W. M. H., age 19. Family history negative. Menstrual history previous to this trouble has been normal; no pregnancy; no digestive disturbances or severe attack of abdominal pain.

Examination October 22, 1916. Retro-displacement of uterus. Salpingitis. Wassermann reaction negative. Urethral and cervical smears negative.

Operation: October 31. Abdomen opened in median line; both tubes and ovaries diseased and bound down in dense adhesions. Because of extensive inflammatory condition a double salpingectomy and double oöphorectomy was done. Coffer suspension of uterus was also done. Section of ovarian tissue was transplanted under skin in adipose tissue right side of incision.

Patient developed temperature about five days after operation, and twelve days after operation slight amount of pus was found in upper portion of wound. This condition cleared up and the graft was apparently not involved.

Case 14. Mrs. N. L., age 23; married two years; one child five years old, normal delivery; no miscarriage. Admitted June 17, 1916, suffering pain in left side. History of painful menstruation and profuse and irregular menstruation.

Examination showed extensive inflammatory condition in lower pelvis; marked tenderness on both sides of uterus and uterus adherent.

Operation: June 23, 1916. Both ovaries and tubes removed. Three small pieces of ovarian tissue were transplanted under skin to the right side of incision. Menstruated July 26; lasted until August 2; appeared August 8, lasted until August 11; appeared August 14, lasted until August 22, and after then appeared every month and lasted about five days. She has suffered no cramps or nervous symptoms.

February 21, 1917, she consulted me because of swelling in left side of incision. I found on examination that the graft was distinctly palpable and slightly tender on palpation.

Case 15. Operated June, 1916. Mrs. J. Suffering pain in abdomen. History of irregular and profuse menstruation for several months. Abdomen was opened in the median line. Both tubes and ovaries found bound down by adhesions and diseased. Because of cystic condition of ovaries they were removed; uterus was left intact. At the end of operation several small sections of ovarian tissue were placed in adipose tissue on top of fascia to the right of median incision. Patient had no further trouble and left the Hospital in two weeks. Two months after, patient began to menstruate and suffered no pain. No further report.

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DISCUSSION OF PAPER BY DR. W. D. PHILLIPS.

Dr. E. L. King: The menopause is less severe in negro women than in whites. I endorse Dr. Phillips' remarks in the placing of the graft beneath the skin, because, in most cases, this graft is not usually clean, and, should any infection result, the graft can be easily removed.

Dr. H. E. Bernadas: I have done quite a few hysterectomies with no symptoms of menopause; just why, I am unable to say. I believe that Dr. Phillips' technic is excellent.

Dr. Ney: The work done by Dr. Phillips is of interest, especially to the general surgeon. Its application is of especial interest to those cases of menorrhagia where it is necessary to remove the ovaries to prevent menopause. I would suggest that the graft be left in the cul-de-sac rather than in the sterile normal salt solution, which may or may not be at body temperature.

Dr. Phillips (in closing) stated that he agreed with Dr. King that the symptoms of the artificial menopause do not seem to be as pronounced in the colored woman as in the white, but in either race, if suitable cases are selected, ovarian transplantation does seem to modify and lessen the symptoms of the artificial menopause. It has been noted that the cystic changes in the ovarian tissue may persist in the graft after transplantation, and for this reason it is advisable to select a superficial location for placing the graft, in case it may become necessary to remove it at a later date.

THE REGISTERED NURSE.*

By JNO. T. CREBBIN, M. D., New Orleans, La.

The time is opportune to call your attention to the registered nurse. Doubtless all physicians are aware that Act No. 138 was passed and approved July 10, 1912, creating a Nurses' Board of Examiners, consisting of five physicians selected by the Governor from a list of ten names recommended by the Louisiana State Nurses' Association. The duties of the Board are to examine and register nurses and to arrange reciprocity with other Boards having a like standard with this Board.

Each applicant for nursing must submit a certificate of her preliminary educational training, stating that applicant has covered,

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with all other qualifications, at least one year of high school work. Formerly almost any able-bodied woman would answer. When one recalls that until recently physicians were only required to have one year of high school, preliminary to their university course, the same now being required of a nurse, one can appreciate the high standard which has been reached.

It may be of interest to know that at the annual session of the American Nurses' Association held in this city last year the Louisiana Board was declared one with the most progressive and excellent system in the United States. Since then some of our forms have been adopted by other Boards.

It is only within recent years the profession of nursing has taken the place it deserves, which high standard owes its attainment and present recognition to the cöoperation of the Nurses' Associations, the Boards of Examiners, the superintendents and the instructors and physicians of training schools.

All training schools and hospitals must be inspected, guaranteeing proper quarters, with hygienic surroundings, for the nurses; the necessary facilities for teaching, that the required branches are being taught, with sufficient hours for practical and theoretical training, the requisite number of beds and sufficient equipment throughout the hospital. These, in a few words, are the responsibilities of the examiners, all of which entails much labor and time.

A certificate of registration is proof conclusive that the holder has complied with all the requirements of the Board as well as a guarantee to the physician and family that the nurse has graduated from an accredited training school. It is also a bond of efficiency. The certificate issued by this Board is recognized by ten other State Boards, and it is fair to assume that many more will shortly reciprocate.

We have registered 900 nurses. This in itself is evidence of the amount of work accomplished. Just as there is a difference between a licensed physician and one who is not, so is there a difference between a registered and an unregistered nurse.

We urge all physicians to employ none but a registered nurse. By so doing you will not only help to upbuild a noble profession, assisting those who are complying with the requirements of the law, but you will be safeguarding the welfare of your patients as well. Surely, from 900 registered nurses a choice may be made.

At no period in the history of our country is a registered nurse more in demand than at the present. She stands confronted by an

immense task. In the next few months she will play a greater part in the life of the nation than ever before. She is far better fitted to take her place than the vast majority of Americans realize. She has been growing and extending her activities and proficiencies in the last few years at such a rate that the public has hardly kept apace.

As the common center of organized American nursing, the department is not only an asset to this nation but to France, England, Belgium and the other nations that look to us for succor. This is the time for every nurse to understand just what her duty is, what she can do, and what may be expected of her, so that she may by intelligent cöoperation help to solve the nation's problem in the most effective way. Think what an important contribution toward preparedness the trained nurse offers!

Let those who stand a united people in the mighty conflict feel that the scientifically-trained nurse is not only the soldier's but the nation's bulwark, and we confidently believe she will not be found wanting when the call of the country comes.

DISCUSSION OF PAPER BY DR. J. T. CREBBIN.

Dr. C. A. Bahn: The nursing profession is asking to-day the same recognition of the medical profession that the medical profession asked of the public twenty years ago. The registered nurse feels that she should be entitled to recognition and support of the medical profession, because she has at least a moderate preliminary education; because she has spent three years in systematic and regular study; has recognized universally and has complied with the law of the State. These are the principles which enable the medical profession to receive recognition. It is only by means of an Examining Board that conditions can be standardized; that the profession and the public can be warranted the best service; that the nurse can be warranted a uniform and balanced course, with proper mental and moral environment; that the training school can be warranted a uniformity of requirements, thereby eliminating unfair competition. In other words, the Louisiana Nurses' Board of Examiners stands for a square deal to the public, the profession, the nurses and the training schools. In the past four years of its existence it has issued approximately 500,000 pieces of mail to the nursing and medical professions. The Louisiana Board is conducted on lines of efficiency and economy. In fact, there is no nursing board in the United States in which the same amount of work is accomplished per year as in Louisiana. The Board, in its yearly inspection of the training schools, obtains accurate information concerning the branches of study, hours, lectures and clinic in each branch, curriculum, facility for teaching, nurses' quarters, and so forth, and inspects the training schools on this basis. There is not a student nurse in an accredited training school who has not filed a detailed description of her preliminary education, as verified by her principal or by affidavit.

Dr. Genella: I have been shown several circular letters and would like to know why the Board sends out circular letters requesting the nurses to register.

Dr. J. F. Oechsner: On one or two occasions the physician and patients were waiting for a nurse who did not keep her appointment. I think these breaches of nursing ethics should be taken up by some one.

Dr. Storck: I would like to know whether the nurses have to pass an examination after they graduate to be registered?

Dr. Ney: In the base hospital service in France it was most forcibly brought to my attention that educated women make more efficient nurses than those without education.

Dr. Eustis: I believe often that the nurse loses time and money to keep appointments, especially in maternity cases, for which she receives no compensation. I mention this to show that there are two sides to the nursing ethics problem.

Dr. Crebbin (in closing): Replying to Dr. L. J. Genella: When the Board was first organized it was necessary to find out who was practicing nursing and who was not. Hence, circular letters were sent to those who were practicing and eligible for registration.

Replying to Dr. Oechsner: The Louisiana State Nurses' Association is one of the most aggressive organizations in the State, and if the doctor will submit the matter to them I feel sure they will be prompt to give the matter consideration and to secure a relief of any existing evils. I know that the Nurses' Association is as much interested in the ethics of its profession as the medical fraternity.

Replying to Dr. Storck: The examination is conducted in the following branches, composed of ten questions: Medical nursing, surgical nursing, chemistry, bacteriology and hygiene, materia medica, physiology, anatomy, dietetics, obstetrics, infant feeding and pediatrics. These examinations are conducted semi-annually in Shreveport and New Orleans.

The Louisiana Nurses' Board of Examiners will be more than pleased to furnish information concerning its work or the training schools to any physician in this State.

THE PARENTERAL INJECTION OF MILK AS A CURATIVE AGENT.*

By T. J. DIMITRY, M. D., New Orleans, La.

The interesting possibility of what is to be obtained by the use of protein parenterally injected offers an exciting study that should stimulate investigation entirely justifiable.

The arguments necessary to an apreciation of the subject demands an elementary knowledge as to what is a serum, a vaccin and a toxin. Unfortunately, some terms have been handed down, and occasion confusion, and it is well to adhere to the familiar nomenclature, yet remember that in vaccins the dead culture or micröorganisms which are used have nothing to do with cows, nor

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is the procedure directly analogous to vaccination, which is performed with a living virus.

In the preparation of the vaccins we first determine the organism causing the disease, and these organisms are cultivated on some acceptable media; after growth they are washed from this media, standardized, and finally heated to 60° centigrade for an hour and then tested for sterility. This boiling has destroyed all reproductive powers, they are neutral, they are "dead," and when you are using a vaccin you are using a sterile organism; hence, it behooves us to study the dead organism, for we are not dealing with, as Weisman had designated the "biophoric molecules," which is the living matter endowed with specific properties. Antitoxins and serums differ greatly from the vaccins. In the production of antitoxin we are not dealing with dead organisms, as in the vaccins, but with a toxin secretion from the living organism; this toxin obtained is injected into an animal and the serum afterward taken from the animal is used as an antitoxin. In most organisms there is no toxin secreted in the culture media.

In serum the live organism is injected in different doses into an animal until this animal has become immune to large doses, and then you obtain the serum of this animal for curative purposes. This serum is antibacterial and not antitoxic. Diphtheria antitoxin globulins are a very favorable culture media for the growth of Klebs-Loeffler bacillus, but a serum acts quite differently, for a serum is antibacterial.

Apologizing for these elementary facts reviewed, and as it is vaccins that concern us primarily, our beginning is a study of dead micröorganism, which do not secrete a toxin. Further consideration carries us to an analysis of dead substances. Bacteria are much like the higher animals in their life process. They demand food, they select, assimilate and excrete, but when dead they are complicated chemical substances, much as are the tissues of higher plants and animals. The study, chemically and physiologically, of micröorganism, also vegetable life and animal life, shows that they contain a poison, and, chemically, this poison may be different, but physiologically they cannot be differentiated by symptoms induced.

The poison obtained from the typhoid bacillus, that from egg albumin and from hemp seed kill animals in the same doses, with the same symptoms and the same lesions. Adami says (Vol. 1,

General Pathology): "If we make a broad survey of all forms of life, animal and vegetable, we find there is one order of substances common to and to be extracted from all [dead] cells, however simple or however highly differentiated, namely: proteids, or, as it is becoming now the custom to designate the wider group of related substances, protein." There is no other constituent so common to all cells. It is true that when we analyze living matter, to be able to isolate the protein, renders that matter dead; hence, we recognize that they manifest little of the phenomena which we note as proper to living matter. "Life is bound up with the presence of proteins." These proteins, common to all dead cells, are complex compounds of nitrogen, carbon, oxygen, hydrogen and sulphur; the highest forms contain also iron and phosphous. Dead bacteria are particulate protein. Vaccins are dead bacteria and do not grow in the body, and these vaccins are protein poison, and are not specific, nor is the tolerance obtained by protein substance specific. If the above deductions are anywhere near correct, then it is possible to assert that vaccins are not specific. This assertion is destructive to your autogenous vaccins. In the review of literature we note repeated observation from many sources where results have been obtained by the use of non-specific treatment for disease. As early as 1895 M. Matthes, writing in the *Deutsch. Arch. f. klin. Med.*, demonstrated a reaction by the hypodermic injection of an albumose which was typical of the tuberculin reaction. Rumpf treated a series of typhoid fever cases with a vaccin of *Bacillus pyocyaneus* and with favorable results. Von Wagner treated paretics with tuberculin, and M. Black, in 1915, in the *Wien. Klin. Woch'nsc.*, has reported a series of cases of early syphilis treated with tuberculin. Kraus, in the *Münsch. Med. Wochn'sc.*, 1915, and J. L. Miller obtained equally as good results with other substances than vaccins, such as proteins and albumose; and Müeller and Weiss, in *Wien. Klin Wochnschr.*, 1916, obtained good results in treatment of gonorrheal arthritis with the injection of milk. Friedlander cured forty-odd cases of trachoma with the injection of milk.

This non-specificity may be noted by referring to reports from Culver, of Chicago; D. J. Davis, Thanner, Joblin, Peterson and Darier. The study of favorable results obtained by the use of different serums shows a non-specificity. To quote Darier, he says:

"Apart from the specific indications afforded by diphtheria, tetanus and hydrophobia, all the sera, viz: Deutschmann's serum, anti-staphylococcus serum, anti-pneumococcus, anti-streptococcus serum, have mani-

fested no true specific action. All of them may be said to act more or less efficiently. But none of them have shown the least superiority from the therapeutic standpoint over what we have termed para-specific serotherapy, which is an internal administration of the anti-diphtheric serum, which acts as a kind of 'opothérapie sérique de défense generale.' ''

Rogman used several sera. We can remember the Schafer vaccin so dogmatically criticized because they were non-specific, though they did act efficiently at times. At the recent meeting of the State Medical Society, Dr. Herold, of Shreveport, cited the virtue of horse serum in pellagra. I carried out some investigation for Dr. Chas. Chassaignac some years ago where we used salvarsanized goat serum in the treatment of syphilis. The serum did not show a trace of salvarsan, and on the face of it seemed so unscientific that the investigation was unjustifiable. But the goat serum did possess a certain merit, and the results can now be accounted for. Might not this be an explanation for the action of the Swift-Ellis treatment in cerebro-spinal syphilis, and the investigation of Miller and Lusk, in typhoid fever, wherein all cases terminated by crisis after a single injection of albumose? He notes that his work was simply confirmatory of those already recorded. He treated acute, subacute and chronic arthritis, and reports favorably. Vaughn claims to have obtained a transitory immunity by the use of egg albumin.

Joblin and Peterson cite Wright as saying: *"All those who have had much experience with vaccin will have seen cases where therapeutic effects, lying quite outside the range of the particular vaccin employed, and therefore, as we thought, not quite creditable to science, have been obtained by vaccin-therapy."*

This recitation of non-specificity may be carried on indefinitely, but what I desire to justify is the investigation of protein substances used parenterally as a curative means. I have been using milk intramuscalarly injected and have obtained good results in certain eye affections, and, with a precedent, others might investigate the possibilities of a very attractive study. Many fear to rush in, but a review of Peterson and Joblin, Vaughn, Davis, Müeller, Thanner, Friedlander and many others will make it possible to follow their lead.

The unusually rapid therapeutic effect obtained by this injection of milk, the fever produced, the dosage, the standardization, sen-

itization, immunity and anaphylaxis, are all equally important in the study of protein therapeusis. If time permitted we could offer a reasonable hypothesis as to the action of these non-specific substances. They have a selective stimulation, they provoke a leucocytosis, hyperprexia, a mobilization of ferments and an increase in antiferments.

In selective stimulation we cite the recent paper of Becht and Lenckhart, who explain the source of antibodies in the hematopoietic organs. These protein substances act as a stimulant to these tissues, and they then flood the body with antibodies. Wright claimed that, after the injection of vaccin, he had a negative phase, but Bull asserts that this does not hold true. Dunklin finds that a marked increase in antibodies follows the intravenous injection of protoses.

I invite others to assist in an attractive and logical study. Permit the pendulum to swing. Get attached to a controling body.

THE TREATMENT OF PERSISTENT GONORRHEAL INFECTION IN THE FEMALE URETHRA.*

By MAURICE J. GELPI, A. B., M. D., New Orleans, La.

There are five areas in the female urogenital tract in which the gonococcus lodges and is likely to persist after the infection ceases to be acute. These five areas or zones are the vulvo-vaginal or Bartholin glands, the urethral or Skene's glands, the cervical glands, which, when occluded, form the so-called Nabothian cysts; the uterine cornua, and the Fallopian tubes. The kidney pelvis is rarely affected. During an acute fulminating attack it may be possible for the gonococcus to be present in all these areas simultaneously, including also the uterine fundus. As a result of this invasion by the gonococcus you may have the well-known chronic pathological conditions of vulvovaginitis, endocervicitis, metritis, salpingitis and urethritis, or more properly speaking, Skenitis. All these conditions usually receive proper attention as indicated, except the latter. As it is in the urethra, or rather in Skene's glands, that a persistent focus of infection is likely to be overlooked, it

* Read before the Orleans Parish Medical Society May 28, 1917.

seems worth while to call attention to a simple method of dealing with persistent infection in these glands.

Our attention is usually called to the presence of a chronic infection of Skene's glands by symptoms of urethral or bladder irritability. The symptoms appear in the form of discomfort, frequency or painful urination. Examination usually reveals the meatus more or less red, swollen and painful to touch, though in a long-standing infection the inflammatory reaction externally may be almost *nil*. On inspection of the anterior urethral wall there is usually seen either an elevated red spot corresponding to the infected gland, or simply a red macule resembling a flea-bite, and similar in appearance to the macule sometimes seen at the orifice of the duct of an infected vulvo-vaginal gland. On stripping the urethra it is usually possible to obtain a smear in which can be demonstrated the characteristic gram negative, intracellular diplococci. At times a solid plug of pus and bacteria can be squeezed out of a gland. In other instances the secretion is so profuse that the gonococcus can be demonstrated without even stripping the gland. I have seen such a condition, accompanied by a persistent gonorrheal cystitis which lasted for years after the original infection, and which could not be either symptomatically or bacteriologically cured until the destruction of Skene's glands had been effected. This is rather exceptionally the case, however, because the bladder infection usually subsides after a reasonable period of time, though unquestionably many of these cases complain of a persistent bladder irritability long after the bladder and urine are apparently normal and free from gonococci. In a certain number of these cases, at least, the irritability is not in the bladder *per se*, but the result of a persistent infection in Skene's glands. In other instances there are recurrent attacks of cystitis, which apparently are directly traceable to the persistent infection in the anterior urethra.

Treatment.—The treatment consists in the complete destruction of the diseased glands. This can be effected at times by means of 10 per cent silver nitrate, but the most efficient means is afforded by the actual cautery.

There can be but three essentials necessary for properly destroying the glands—a thoroughly good light, a thoroughly good exposure of the inside of the anterior urethra, and a reliable cautery of the proper variety. The ordinary operating electric headlight

suits the purpose very well, and can be attached to any lamp socket either in the office or in a home. Various urethral dilators and speculæ have been devised for the purpose of exposing the glands, but I have found most convenient for my purpose a self-retaining model which I had fashioned from a nasal speculum. The advantages of this instrument are that exposure is obtained with the least amount of traumatism and pain; that the labia are protected from the heat of the cautery, and that it remains in place, allowing the free use of both hands. An additional exposure can sometimes be obtained by elevating the anterior urethral wall by means of a retractor made from a bent hairpin. The cautery used is of the ordinary type, run by a motor, and the point consists of a fine, curved platinum wire.

With the patient in the dorsal position, the urethra is anesthetized by means of a pledget of cotton soaked in 10 per cent cocain or novocain. This is inserted in the anterior urethra and allowed to project so as to come in contact with and lie against the meatus. After five minutes the cotton is removed, the special speculum inserted and opened, and the orifice of the diseased gland can usually be detected. If the diseased gland is plainly visible it can be cauterized at once by simply touching it throughout its whole extent with the cautery. If some doubt exists as to its exact location and extent, the gland can be catheterized by means of a very small wire probe and the gland can be cauterized and destroyed, using the probe as a guide. Care should be exercised not to pronlong the cauterization too long, so as not to burn the adjoining urethral mucosa, which might result in a stricture. It is better to make several repeated, short applications than a single long one. When the cauterization has been accomplished, the instruments are removed and the operation is complete. If at a subsequent examination it is found that the destruction of the gland has not been thoroughly effected, the same procedure is repeated.

This rather delicate, useful, effective procedure can be readily carried out in one's office with very little discomfort to the patient. It is offered here as a commonsense, ready means of combating an annoying condition which, if allowed to persist, might serve to mar an otherwise brilliant result in the treatment of a chronic gonorrheal infection.

WHAT TULANE HAS DONE FOR THE COUNTRY IN TIMES OF WAR.

Abstract from the Ivy Day Address, June 2, 1917,

By RUDOLPH MATAS, M. D., LL. D., F. A. C. S., New Orleans, La.

It is now a little over one year since the American Red Cross began to organize and to equip complete base hospital units and laid the foundation for twelve different activities which, under the general designation of Red Cross Units, offers any active, capable physician and every trained nurse ample opportunity for service. Thirty-six base hospital units have now been organized under the auspices of the American Red Cross. I am happy at the thought that Base Hospital Unit No. 24 is to be known and recognized as the Tulane Unit, with the Medical School of Tulane as its parent institution.

The professional personnel of this unit is constituted of the members of your Faculty and some of its distinguished alumni, who have volunteered for service from our neighboring States. The medical, surgical and laboratory sections are manned by some of your leading and most active teachers, who have pledged themselves to serve in the unit in foreign fields and who are now impatiently awaiting their commission to proceed to France. The nurses and their aids are, for the greater part, New Orleans women, alumnæ of the New Orleans schools of nursing, including the Touro Infirmary, Charity Hospital, Hotel Dieu and Presbyterian Hospital. The hospital and professional equipment, amounting to $25,000, exclusive of $4,500 worth of supplies (in all, about $30,000), have been contributed by the people of New Orleans under the patriotic leadership and inspiring propaganda of the New Orleans Chapter of the American Red Cross. This is the first and only base hospital unit, caring for 500 beds, that has been organized and equipped in the South—the only unit, in fact, south of Baltimore.

As originally conceived, it had been planned that the administrative and civilian personnel, amounting to over 160 enlisted persons, should have been supplied by the student body of the Tulane School of Medicine in all its grades, thus, practically, mobilizing the whole School of Medicine—students and Faculty.

When this suggestion was first acted upon the response of the student body was immediate and magnificent. As acting director of the unit, I now avail myself of this opportunity to express my

grateful thanks to, and my admiration of, the student body, for the immediate, unhesitating and spontaneous response to the call for service that followed the posting of the notices for enlistment in the unit. Fortunately for the class and for the school, but perhaps unfortunately for the unit, the plan which had been so well conceived on the basis of the present Italian teaching hospital units was soon destined to collapse, in consequence of the determination of the Council of National Defense, which, early in April, 1917, decided that medical as well as other students duly matriculated in schools, universities and other educational institutions should not be conscripted into service. After the nearly fatal experience of England, we can realize that this resolution was wise and most timely, and that the best and most practical service the student can render his country is to remain on the benches in the classroom, with the view of perfecting his knowledge so that he may render his country the greater service in his special province.

Apart, therefore, from the administrative personnel, which is to be otherwise enlisted in New Orleans, the unit is to be directed and officered by Tulane teachers and Tulane graduates. This will be the first collective contribution which the Tulane Unit will make to the war. I feel confident in announcing the list of the professional personnel, as it is now organized and ready for service with the army abroad, that the people of New Orleans will feel that their contribution to this worthy and generous cause will have been well invested and they will know that their trust and faith in the loyalty and patriotism of Tulane have not been misplaced.

PRESENT STATUS OF THE PROFESSIONAL PERSONNEL, BASE HOSPITAL, UNIT NO. 24, MEDICAL SCHOOL OF TULANE UNIVERSITY.

Majors.

1. Rudolph Matas, F. A. C. S., Professor of Surgery, Tulane University, organizer and Acting Director (May 7, 1916-June 7, 1917).
2. John B. Elliott, Jr., Professor of Internal Medicine, Tulane University, Director and Chief of the Medical Section (June 7, 1917).
3. Urban Maes, F. A. C. S., Assistant Professor of Clinical and Operative Surgery, Tulane University, Asistant Director of Surgical Section and Chief of Operating Staff.

Captains.

1. John Smyth, F. A. C. S., Professor of Clinical Surgery, Tulane University, Staff Surgeon.
2. Erasmus D. Fenner, F. A. C. S., Professor of Orthopedics, Tulane University, Staff Surgeon (in charge of orthopedics).

3. Joseph Hume, Professor of Genito-Urinary and Venereal Diseases, Tulane University, Staff Surgeon (in charge of genito-urinary and venereal cases).

4. Charles T. Chamberlain (M. D., Tulane), surgeon in charge of infirmary, Natchez, Miss, Staff Surgeon.

5. S. Paul Klotz (A. B., M. D., Tulane), graduate Army Medical School, Washington, D. C., class 1910, Staff Surgeon.

6. John T. Halsey, Professor of Therapeutics and Clinical Medicine, Tulane University, Staff Physician (Acting Adjutant).

7. Joseph D. Weis, Professor of Tropical and Clinical Medicine, Tulane University, Staff Physician.

8. Isaac I. Lemann, Professor of Clinical Medicine, Tulane University, Staff Physician (Acting Quartermaster).

9. Chaillé Jamison, Assistant Professor of Clinical Medicine in Clinical Laboratory, Tulane University, Staff Physician.

10. John A. Lanford, Assistant Professor of Pathology, Tulane University; Pathologist, Touro Infirmary Assistant Director (in charge of laboratories).

Lieutenants.

1. Charles A. Bahn, Clinical Assistant, Ophthalmology, Tulane University, Secretary Orleans Parish Medical Society, Oculist.

2. Harold S. Kearney (M. D., Tulane), Clinical Assistant, Ear, Nose and Throat, Tulane Infirmary, Specialist (in charge of ear, nose and throat cases).

3. S. King Rand (M. D., Tulane), former Assistant, Pathological University of Wisconsin; Pathologist, Private Infirmary, Alexandria, La., Assistant Pathologist and Bacteriologist.

4. Paul G. Lacroix, Clinical Instructor, Minor Surgery, Tulane University, Assistant Staff Surgeon (ward surgeon).

5. Alexander Ficklen (M. D., Tulane), Junior Surgeon, Touro Infirmary, Assistant Staff Surgeon (ward surgeon).

6. Muir Bradburn, Assistant Demonstrator, Operative Surgery, Tulane University, Assistant Staff Surgeon (ward surgeon).

7. John F. Dicks, Instructor, Gynecology, Tulane University, Assistant Staff Surgeon (ward surgeon).

8. Charles K. Wall (M. D., Tulane), Senior Resident Staff, Touro Infirmary, Assistant Surgeon (ward surgeon).

9. E. R. Bowie (M. D., Tulane), Resident Staff, Touro Infirmary; Assistant Radiologic Laboratory, Radiologist.

10. Dentist (under consideration).

11. Oscar Joseph Trappey, Demonstrator, Operative Dentistry, School of Dentistry, Tulane University, Dentist.

12. Neurologist (under consideration).

While this is the first body of Tulanians who have been commissioned and enlisted for service in this war, it is with pleasure that I recall the fact that several of our graduates have already been called and are on their way to the front to serve as medical men with the colors in military capacities.

One of our graduates, Dr. M. P. Lane, served in the last Serbian campaign with the first American Red Cross Unite, contracting

typhus fever, from which he recovered. He did splendid work near Belgrade, and since the return of the unit, after the suppression of the typhus epidemic, he again enlisted with the Canadian forces and is now at the front in France. One of the former and most popular instructors in the laboratory of pathology, Dr. F. B. Gurd, enlisted as an officer in the Canadian contingent and, after rendering brilliant service in Salonika and the Mediterranean, is now engaged with the Canadians in their heroic work on the Arras front. Dr. R. E. Graham, another of our recent graduates, after completing his course of instruction at the Army Medical School, has been sent, with eleven of his classmates, to serve in France with an army corps now about to embark for Europe. Captain T. C. Austin, of the Army Medical Corps (Tulane, class of 1909), who was so recently with us as the first military instructor appointed by the Surgeon General to lecture on this branch, has also gone to the front as Military Director of the St. Louis Base Hospital Unit.

There are many others serving as commissioned officers in various capacities in the foreign service of the government, but whose present addresses have not reached me. These all constitute the first line of scientific skirmishers who have preceded the greater body of our alumni, whom we are confident will rally round the banner of Tulane, upholding its best traditions for patriotic service and efficiency.

In connection with the Medical School of Tulane we can well afford to mention with legitimate pride its long line of loyal and patriotic deeds. During the eighty-three years of its existence the Medical School of Tulane University of Louisiana has never failed, through its Faculty and Alumni (who now number nearly 4,900), to respond to the call of duty and service in time of war. On May 3, 1898, the Dean of the Medical Department, Dr. Stanford E. Chaillé, of honored memory, in his official report at the commencement exercises, alluded to the Spanish-American War in the following terms:

"This college has survived and still progresses, in spite of numerous financial panics, of eleven yellow fever and also eleven cholera epidemics, and of two great wars (the Mexican War of 1846 and the Civil War of 1860-64). A third war is now in progress; even if it should be connected with some other public misfortune, it will find at its close the Medical Department of Tulane University (the oldest and foremost medical college of the great Southwest) still pursuing its onward career, still striving to relieve all who suffer—whether friends or foes—from the woes of disease and premature death."

In 1898, as in 1861, the call to arms found a prompt echo in the brave hearts of the patriotic sons of our Medical Department, and "grim-visaged war" again tested the valor of our students and graduates.

"In 1861 our students numbered 404. The war began, and left us in 1862 with but 94—a sufficient indication of the patriotism of our students. Six years after the war, information was procured of only 427 of our graduates; of these, 240 had served in the Confederate Army; 19 were killed, 3 died of wounds, 5 were permanently disabled by wounds received in action, 16 'died in service'—some of disease, some in prison. To this fraction of the ghastly truth, it may be added that in 1875 all of our professors had been, and to-day a majority of them were, officers in the Confederate Army. This roll of honor is probably unsurpassed by any medical college."

The Spanish-American war made comparatively little demanad upon the patriotic ardor and martial capacity of our country, yet it was sufficient to justify the belief that no medical college can surpass, if equal, our own in the number of graduates who entered military service, and who won distinction for themselves and for their Alma Mater. At least 54 of our graduates (51 of whom were medical officers) and 13 of our undergraduates served during this war. There were probably more of whom no information was obtained at the school. The records of the war show that many of these rendered distinguished service and gained the enviable distinction of special commendation from the highest official sources.

In 1898 there were 125,000 doctors and 120 regular medical colleges in the United States. The Surgeon General of the United States Army appointed from these States about 650 so-called "contract surgeons," thirty of whom were our graduates. There were twenty "contract surgeons" at the battles around Santiago; seven of these our graduates.

The military and medical conditions under which the United States has entered the present war differ vitally from those of 1898. Our geographical relation to the seat of war is very different, but we may rest assured that the graduates of the Medical School are not "slackers" and will not be found wanting and that they will sustain the most worthy, the noblest traditions of their predecessors.

BULLETIN OF THE LOUISIANA STATE MEDICAL SOCIETY

Edited by DR. L. R. DE BUYS, Secretary-Treasurer.

OUR DUTY.

Louisiana has done her share in our present crisis, both in the registration of her eligible young men for the army and the subscription to the Liberty Bond issue to finance the war. There is another call now being made in which an opportunity is given the medical men of the State to show, by their support, their endorsement of the attitude of this country in its efforts for a lasting world's peace.

The Louisiana State Medical Society is glad to see, in the applications of physicians for the Medical Officers' Reserve Corps, that its members are those who are offering their services, and that in only a few instances are the applicants physicians who are not members of organized medicine, clearly showing that our State Society is composed of the most loyal doctors in the State, who keenly feel their sense of duty.

It should be remembered that there is a well-defined duty to be performed by every medical man in the State, whether he goes to the front or remains at home. The former will, in his spirit of patriotism, make many sacrifices, one of which will be to leave his practice, in the majority of instances, for a salary much less remunerative. The latter, because of responsibilities and duties, will be deprived of serving his country at the front, but his contribution to the cause may be just as great if he pledges himself to conserve the practice of the former, and thereby make the absentee's financial sacrifice less. By the proper care in this regard the physician, upon his return, can find his practice awaiting him.

Our entire membership in this crisis, even though slight differences may exist between some of us, should pledge itself to support, respect and conserve the rights of those self-sacrificing members who go to the front.

Each Parish Society should pass suitable resolutions to this effect, and each member should consider himself specially delegated to see that the resolutions adopted are strictly enforced.

There are two ways by which a physician may continue his prac-

tice during his absence: (1) by leaving it to a designated physician, or (2) by requesting his Parish Society to act as custodian. By the custodianship being vested in the Parish Society, it is probable that the individual interests would be better conserved, as, for example, should a certain patient not care to consult a specified physician, but prefer to see another, this other physician would be responsible to the Society. There would be no objection, however, to the absentee specifying a physician to do the major part of his work.

The proper adjustment of fees could be agreed upon by the physician or by the Parish Society if it is to be the custodian; as, for example, a certain proportion for the absentee, another proportion for the physician doing the work, and, in the event the Parish Society is the custodian, a certain percentage for the Society to defray the expenses incident to the necessary bookkeeping.

The plan is a simple one, but because of a lack of space it cannot be gone into as completely as is possible. It should be borne in mind, however, that there may be local conditions existing which would require especial consideration.

The physician intending to absent himself should send a card to his clientele conveying whatever information he may deem necessary, and upon which should appear the resolution adopted by his Parish Society. He should also send a card to his fellow-practitioners for their information, so there could be no excuse upon the plea of lack of notification.

All of this should be done through medical organization and the responsibility placed with the Parish Society.

Doctor, remember before leaving for the front, what medical organization has meant to you and what it can now do for you. Remember the standing and prestige that goes with it in the eyes of the Government. Do not, therefore, allow your absence in any way to interfere with your membership, but continue your good standing, without lapse of benefits, which is more valuable now than ever.

Remember your country, State and National Societies are proud of you and are watching your every action and expecting much of you. Remember, when the time comes, when you shall be honored, that it will be mighty good for you to feel that your standing in organized medicine is what it should be. And, finally, remember

whatever honor you may be to your country will be magnified tremendously in your home Parish and State Societies, particularly if it can be said that you are one of them. Therefore, doctor, do not permit your membership to lapse when you go to the front, and, God bless you!

The Secretary's office is anxious to keep in touch with each member of the Society who is in the service and will be glad to hear frequently from him, so as to keep our membership informed through the pages of the JOURNAL as to what he is doing. Also to inform him of what is going on at home. Do not, therefore, permit your absence from your home State to sever your home ties.

PROCEEDINGS OF THE AMERICAN SOCIETY OF TROPICAL MEDICINE

FOURTEENTH ANNUAL MEETING, NEW YORK CITY, June 4-5, 1917.

At 2 o'clock p. m. on Monday, June 4, the President, Dr. B. K. Ashford, with Dr. H. R. Carter and Dr. Isadore Dyer, met at the Margaret Fahnestock Training School of the New York Postgraduate School. At 2:30 p. m., as no other officers or members were present, the gathering adjourned to 2 o'clock p. m., Tuesday, June 5.

On June 5 the meeting was called to order at 2:15 p. m., the President, Dr. Bailey K. Ashford, in the chair, and with the following other members and guests present: Drs. H. R. Carter, Victor G. Heiser and W. C. Rucker, of the U. S. P. H. S.; Drs. Damaso Rivas, Philadelphia; W. S. Rankin, North Carolina; Ernest L. Walker, San Francisco; G. C. Elder, U. S. Navy; Maurice C. Hall, Detroit, Mich.; T. W. Jackson, Harrisburg, Pa.; Isadore Dyer, New Orleans, and a few others whose names were not given.

In the absence of the Secretary (Dr. John M. Swan, of Rochester, N. Y.), the Chair appointed Dr. Dyer Acting Secretary.

President's Address.

Col. Bailey K. Ashford (Medical Corps, U. S. Army), the President, then addressed the meeting upon *"The Relation of Laboratory Men to the Practice of Medicine in Tropical Countries."* (Paper delivered to Secretary.)

The reports of the Secretary and Treasurer were not presented.

Dr. H. R. Carter (U. S. P. H. S.) excused the absence of his paper for reasons acceptable to the meeting.

Dr. Victor G. Heiser (U. S. P. H. S.) requested that his paper on *"Soil Pollution in the United States and Eastern Countries"* be read by title for publication in the proceedings of the Society.

The following report of the Council was presented and, upon motion duly seconded, was adopted without amendment:

The Council met at the Hotel Astor at 10 a. m. June 5, with President Bailey K. Ashford and Councilors W. C. Rucker and Isadore Dyer present. In the absence of the Secretary (Dr. J. M. Swan), Dr. Dyer acted as Secretary. The Council considered the nominations for membership proposed at the meeting in 1916, and recommended that they be elected by the Society.

It was voted to recommend to the Society that a committee, with power to act, be appointed to consider the publication of a separate Bulletin of the Society Proceedings and Transactions. In the event no immediate plan for such publication can be arranged, the committee be instructed and authorized to continue the arrangement with the **New Orleans Medical and Surgical Journal** for the coming year upon the same terms and conditions as for the past year; further, in the event of the latter arrangement, the committee is to be continued, with a view to a complete report at the meeting of 1918.

The Council again recommends the adoption of the amendment to Article III of the By-Laws, as follows:

We, the undersigned, move that Article III of the By-Laws of the American Society of Tropical Medicine be amended by striking out the words "The President and the Secretary shall be *ex-officio* members of the Council." By striking out the words, "In 1905 three Councillors shall be elected for two years and two Councillors for one year. Thereafter each Councillor shall be elected for two years," and substituting the words, "In 1917 one Councillor shall be elected to serve one year, and one to serve two years. In 1918 one Councillor shall be elected to serve three years, one to serve four years and one to serve five years. Thereafter each Councillor shall be elected to serve five years," so that the article shall read as follows:

"Article III. The officers shall consist of a President, two Vice-Presidents, a Secretary, an Assistant Secretary, a Treasurer, and a Council of five members. They shall perform the customary duties of such officers.

"The Council shall have general supervision of the affairs of the Society, and shall meet from time to time as they determine. The officers shall be *ex-officio* members of the Council. In 1917 one Councilor shall be elected to serve one year and one to serve two years. In 1918 one Councillor shall be elected to serve three years, one to serve four years and one to serve five years. Thereafter each Councillor shall be elected to serve five years.

"In case of death or resignation of any officer or Councillor of the Society, the Council shall be empowered to fill such vacancy until the next annual meeting."

(Signed) Thomas H. Fenton.
Isadore Dyer.
John M. Swan.
M. J. Rosenau.

The Council presents the following nominations for officers and Councillors:

President—C. C. Bass, New Orleans.
First Vice-President—H. J. Nichols, U. S. Army.
Second Vice-President—Karl F. Meyer, San Francisco.
Secretary and Treasurer—John M. Swan, Rochester, N. Y.
Assistant Secretary—Allen J. Smith, Philadelphia.
Councillors (holding over since 1916)—W. P. Chamberlain, U. S. Army; P. E. Garrison; W. C. Rucker, U. S. P. H. S. 1917-18—J. B. Elliott, Jr., New Orleans. 1917-19—G. W. Coy, U. S. P. H. S.

For the Council:

B. K. Ashford,
W. C. Rucker,
Isadore Dyer.

The President took the floor and spoke on the question of new members, urging particularly a close relationship with the Americas to the south of the United States. It was voted to appoint a committee to further the new membership, and, upon resuming the chair, the President named Dr. Damaso Rives, Dr. H. R. Carter and Dr. Ernest L. Walker as the committee.

Drs. Isadore Dyer, W. C. Rucker and V. G. Heiser were named by the President as the Committee on the Bulletin.

Dr. Dyer moved that nominations received within the next sixty days be considered as presented at this meeting. (Carried.)

Dr. W. C. Rucker moved that the Treasurer be authorized to pay expenses of the Committee on New Membership, not to exceed "$10 per month." (Carried.)

Dr. Damaso Rivas, of Philadelphia, then read a paper on *"The Diagnosis, Treatment and Prophylaxis of Malaria as Carried Out in the Sanitation of Brioni, Istrie* (Austria) *in 1899-1902."* (Discussed by Drs. Carter, Heiser, Williams and Jackson.) (Paper not furnished Secretary.)

Dr. Ernest L. Walker (San Francisco) read a paper on *"Leishmaniasis and Pseudo-leishmaniasis in the Amazon Basin."* (Discussed by Drs. Heiser, Rivas and Carter.) (Paper delivered to Secretary.)

Dr. Damaso Rivas (Philadelphia) summarized a paper on *"The Consequence of the European War From the Medical Point of View."* (Paper not delivered to Secretary.)

On motion, the following papers were read by title:

Psychoses Infectieuses Surtout Dans Les Maladies Tropicales. Prof. A. Austregesilo, Rio de Janeiro.

Mycetoma and Pseudo-mycetomatous Formations in the Anglo-Egyptian Sudan. Albert J. Chalmers and R. G. Archibald, Khartoum.

Notes on a Series of 1561 Cases of Cholera Treated Without Potassium Permanganas. N. H. Choksy, Bombay, India.

L'Infestation de L'ankylostomiase Par la Peau. Prof. A. Austregesilo, Rio de Janeiro.

Blister Beetles as a Public Nuisance. Albert J. Chalmers and Harold H. King, Khartoum.

Concerning the Intermediate Host of Schostosomum Mansoni. Dr. Iturbe Paracas, Venezuela.

Contribuicao as Estudo das Verminoses Intestinoes no Bahia. Dr. Octavio Torres, Bahia.

Adenomycose, by Dr. Ezequiel C. Diaz, Belle Horizonte.

Some Observations on the Dysenteric Endamœbæ, by Dr. Henrique de Beaurepaire Aragao.

Notes on Granuloma Venereum, by Dr. Henrique de Beaurepaire Aragao.

Suprarenal Syndrome in Paludism, by Dr. Clementino Fraga, Bahia.

Beri-Beri no Brazil, by Dr. Clementino Fraga, Bahia.

There being no further business, the meeting adjourned.

ISADORE DYER,
Acting Secretary

June 5, 1917.

NEWS AND COMMENT

THE AMERICAN ASSOCIATION FOR THE CONTROL OF SYPHILIS was organized in Cincinnati, May 23, with a charter membership of twenty-nine. The promulgation of the knowledge of syphilis among medical men and institutions is the object of the association. Other phases of the subject will gradually be developed, such as the social and economic sides of the question. The following officers were elected: President, Dr. Martin F. Engman, St. Louis; vice-president, J. F. Schamberg, Philadelphia, and secretary-treasurer, Dr. Harry E. Kleinschmidt, St. Louis.

THE AMERICAN DERMATOLOGISTS' ASSOCIATION held its meeting in Cincinnati, May 24-26. Dr. Abner Post, Boston, was elected president, and Dr. Oliver S. Ormsby, Chicago, was re-elected secretary-treasurer. Philadelphia was selected as the next meeting place.

HOSPITAL FOR CRIPPLES.—A tri-state hospital school in Memphis, for the crippled children of Arkansas, Mississippi and Tennessee, has been established by the "Circle of Good Deeds of King's Daughters of Memphis." The hospital will begin with forty beds, and the purpose of the institution is to develop the minds of the children while their bodies are receiving the care of an orthopedic surgeon.

MEETING OF THE MEDICAL MILK COMMISSION.—The eleventh annual meeting of the American Association of Medical Milk Commissions was held at Brooklyn, June 1-2 and 4, Dr. Walter D. Ludlum, Brooklyn, presiding. The National Certified Milk Contest was conducted, for which three silver cups were awarded. A memorial service to Dr. Henry L. Coit, the father of certified milk, was held on the afternoon of June 2 at Fairfield, N. J.

GIFTS TO JOHNS HOPKINS.—The School of Hygiene and Public Health, Johns Hopkins University, has recently been given $70,000 for maintenance by the Rockefeller Foundation, and a gift of $350,000 from the General Educational Board in New York has been made to the medical school of that institution. The latter gift is to be divided between the laboratory department, which is to receive $250,000, and the department of pediatrics, which receives the remaining $100,000, to be used for the support of the Harriet Lane Home for Children.

CANCER PROPHYLAXIS IN PORTO RICO.—A propaganda committee, affiliated with the Cancer Commission of the United States, has been appointed in Porto Rico to educate the public in the prophylaxis of malignant disease. The committee consists of Dr. J. G. Brioso, chairman, with six physicians.

SMALLPOX IN SEVENTY UNITED STATES CITIES.—According to *Public Health Reports* for May 11, 1917, there were reported from seventy cities in the United States 1,157 cases of smallpox during five weeks ending April 27, 1917. Minneapolis and Austin, Texas, had the highest number, there being 154 cases in the former city and 76 in the latter. Austin was the only city having the virulent type, it is said.

TYPHOID IN CANADA.—Orillia, Ont., has recently suffered an

outbreak of typhoid fever, due, it is thought, to the failure of that town to Pasteurize its milk supply. The disease has been prevalent in Quebec and a number of cases have occurred in Montreal, Sherbrooke, St. Johns, Farnham, St. Hyacinthe, Sorel and Levis.

Mississippi Charity Hospital Reopens.—The Matty Hersee Charity Hospital, Meridian, Miss., which was closed March 6 on account of lack of funds, was reopened April 1, as the result of public subscription. The institution's State appropriation of $11,000 is still unavailable. A new charity hospital for South Mississippi has been started at Laurel, and it is expected that the institution will be ready in September.

The Whitney Marriage Bill, which requires that those who apply for marriage license in New York State shall present affidavits that they are free from communicable diseases, has become a law. The affidavits filed must contain sworn statements that the affiant has never had venereal disease, or that laboratory tests show that such diseases are not now present.

The American Theatrical Hospital has recently been opened in Chicago, where sick and indigent people of the stage and other branches of the amusement field may be cared for.

Meeting of the National Tuberculosis Association.—At the recent annual meeting of the National Association for the Study and Prevention of Tuberulosis a strong protest was made against the United States Government assisting patent medicine concerns in this country to exploit China and the Chinese people.

Resolutions were adopted pledging the support of the Association to the American Red Cross in promoting Red Cross work in any form. Public health nurses, however, were urged to continue in their present field of activity, as their special training in tuberculosis and other public health work is particularly needed at this time to combat disease and social problems created by the war.

National prohibition for both soldiers and civilians during the war period and one year thereafter was advocated.

Col. Theodore Roosevelt and Sir William Osler were elected honorary vice-presidents; president, Dr. Charles L. Minor, Asheville, N. C.; vice-presidents, Dr. Frederick L. Hoffman, Newark, N. J., and Dr. David R. Lyman, Wallingford, Conn.; secretary, Dr. Hy. Barton Jacobs, Baltimore; treasurer, Dr. William M. Baldwin, Washington, D. C.

St. Luke's Hospital, New York, has opened a new ward of

thirty beds for the free treatment of men rejected from military enlistment for minor and remedial physical defects. This service will be maintained during the war, at an estimated cost of about $2,000 a month.

Gift to Yale.—Mrs. E. H. Harriman, of New York, has recently presented a sum of money to Yale University for the purpose of establishing the Harriman Fund for Orthopedics. The fund, yielding an income of $4,600 a year, will provide for a professor of orthopedics in the Medical School.

The United States Civil Service Commission announces two open competitive examinations, to take place July 10 and 11, in the various cities in the United States. The first is to fill present and future vacancies in the positions of physician in the Indian and Panama Canal Services, acting assistant surgeon in the Public Health Service, surgeon and assistant surgeon in the Coast and Geodetic Survey, and is for men only. The second is for anatomist in the Army Medical Museum, Surgeon-General's office, Washington, D. C., for both men and women, at a salary of $1,600 a year. For further information apply for Form 1312, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C. For this section, apply to the Secretary of the United States Civil Service Board, Custom House, New Orleans.

Mayo Foundation Establishes New Fellowships.—The Mayo Foundation for Medical Education and Research (in affiliation with the University of Minnesota) has established assistantships and fellowships in the Section of Dermatology and Syphilology of the Mayo Clinic.

The New Workman's Compensation Act.—The attention of the profession has been called to the changes in the Workmen's Compensation Act, as amended at the recent session of the General Assembly and which went into effect on June 1, 1917. The employee now has "the right to select the physician by whom, or the hospital in which, he desires to be treated," and "the employer shall furnish reasonable medical and hospital services and medicines when they are needed" for four weeks, instead of two, as formerly. Another point, which has not been brought sufficiently to the attention of the profession, is the following clause: "The physician or hospital shall give written notice to the employer within seven days after the beginning of their services that they have been so selected, and shall present their claim to the employer for the pay-

ment of such services within three months after the conclusion thereof, but the failure of the employer to receive such notice shall not render the employee liable for such service."

THE OSLER TESTIMONIAL FUND.—The Medical and Chirurgical Faculty of Maryland has created a fund of $10,000, to be known as the Osler Testimonial Fund, the income of which is to be used for the purchase of books for the faculty library and for the upkeep of the hall which bears Sir William Osler's name.

NEW ORLEANS DISPENSARY FOR WOMEN AND CHILDREN.—The annual meeting of this institution was held recently, and reports show good work accomplished during the year and splendid results obtained. There were 12,830 cases treated during the year and 419 operations performed; 13 deaths, 9 adults and 4 children; 3,349 prescriptions were filled, and 5,382 were filled free through the Sickles Fund.

The money receipts of the year were very great, owing to two large donations—an anonymous gift of $4,500 and the $3,000 given by Frank B. Williams for the nurses' home.

Dr. Linda Coleman, the first woman doctor to receive a degree from Tulane Medical School, was admitted as an intern in the Dispensary.

The same officers were re-elected to serve another year, as follows: President, Miss Florence Dymond; vice-president Mrs. Henry Robinson; corresponding secretary, Mrs. John Clegg; recording secretary, Mrs. James Day; treasurer, Dr. Sara T. Mayo.

THE ANNUAL COMMENCEMENT OF THE TULANE COLLEGE OF MEDICINE took place on June 6, 1917, at the French Opera House. The president of the University, Dr. Robert Sharp, conferred degrees on the following:

Doctor of Medicine: Ernest Emile Allgeyer, William Edward Barker, Jr., Charles Wesley Barrier, Jr., Francis Theophile Beatrous, Miss Linda Hill Coleman, Richard Smith Crichlow, George Joseph de Reyna, Jr., William Russell Eidson, Morgan Shell Evans, Winfield Newton Floyd, Henry Leroy Franklin, Valentine Henry Fuchs, Idys Mims Gage, Tracey Thomas Gately, Edmund Chaillé Hancock, Eugene Darius Hardin, Franklyn Albert Howell, Emmett Lee Irwin, John Joseph Irwin, John Paul Jones, Jr., Waldo Austin Knolle, Lucien Amaron Ledoux, Walter Edmond Levy, Samuel Benson Lyons, Thomas Randolph McCarley, Ernest Monroe McKenzie, Olin Glaze McKenzie, John Campbell McSween, Jr., George Alfred Mayer, Anthony Manuel Menendez, Joseph Charles Menendez, Francis Albert Meyer, John Ralph Morgan, Leon Wencelslau Nowierski, Mercer Cranor Parrott, José Antonio Pérez, George Allen Ramsey, Richard Brandon Rankin, Wirt Adams Rodgers, Manuel Daniel Rojas-Delgado, Jonas William Rosenthal, Walter Clifton Royals, Charles Henry

Savage, Wallace Otto Schutzmann, Daniel Nathan Silverman, John Milton Singleton, Jr., Jack Sidney Stell, Frank Samuel Tarleton, Alexander Green Touchstone, Samuel Sellers Underwood, Rawlin Robert Ward, John Walter Willis.

Graduates in Pharmacy: Adriano Báster-Font, Miss Carmela Batista-Font, Stinson Killgore Heard, Edward Joseph Scallan, Emory Ellison Walker.

Doctor of Public Health: Claude Percival Fryer.

Doctor of Dental Surgery: Alney Austin, Anthony Bacigalupi, Dario Ballina Clemente, Edgar Wilmot Hungate, Felix Morris Isaacson, Pierre Olias Landry, William David McArthur, Levi Holt Magee, David Miles Prowell, Robert Rubinstein, Russell Albert Thompson.

The Graduate School of Medicine (New Orleans Polyclinic) reported 244 matriculates from twenty-six States and three foreign countries.

PERSONALS.—Dr. Charles McVea, president of the Louisiana State University, has been appointed surgeon of the University, to succeed Dr. R. C. Kemp.

REMOVALS.—Dr. J. L. DuBose, from Jacksonville, to Wells, Texas.

Dr. J. D. Hartzo, from Bivins to Atlanta, Texas.

MARRIED.—On June 2, 1917, Dr. John Galbraith Pratt to Miss Eleanor Luzenberg, both of this city.

On June 27, 1917, Dr. William Stewart Hamilton to Miss Lillian Stokes Rhodes, both of Mississippi.

DIED.—On May 29, 1917, Dr. Joseph Stein, a practitioner of New Orleans for forty-two years, aged 68 years.

BOOK REVIEWS AND NOTICES

All new publications sent to the JOURNAL *will be appreciated and will invariably be promptly acknowledged under the heading of "Publications Received." While it will be the aim of the* JOURNAL *to review as many of the works accepted as possible, the editors will be guided by the space available and the merit of respective publications. The acceptance of a book implies no obligation to review.*

A Text-Book of General Bacteriology, by Edwin O. Jordan, Ph. D. Fifth edition, thoroughly revised. Octavo of 669 pages, fully illustrated, W. B. Saunders Company, Philadelphia and London.

This text on Bacteriology needs no further introduction to the medical profession, as it has been most highly recommended by the leading medical colleges of the United States since the first edition.

The new edition contains only eighteen more pages of reading matter than the former one, and the illustrations are the same. The text is not re-written, and only in a few places is it changed, and these changes are where new discoveries have been made and new work is shown to advantage.

Among the additions is the "Method for Testing and Standardizing Disinfectants" as devised by Anderson and McClintic and is copied from the bulletin issued by the Hygienic Laboratory of the Public Health Service of the United States. Another interesting addition is the "Bacteriological Standardization of Water" and the method of determining the same. This is also taken from a bulletin issued by the United States Public Health Service.

The author seems to have accepted the work of Plotz and others as proof that the etiologic factor in typhus fever has been cultured, and devotes an entire chapter to the subject. He also has included whooping cough in the diseases of known etiology.

The bibliography of the book is excellent, making it a valuable aid to the writer on bacteriological subjects and as a reference book.

John A. Lanford

Traumatic Surgery, by J. J. Moorhead, M. D. W. B. Saunders Company, Philadelphia and London.

In the preface the author states that his purpose is to place in one volume the information necessary for diagnosis and treatment of all of the usual and most of the unusual forms of injuries.

After reading the book thoroughly we are impressed with the idea that, while the object is a worthy one, the undertaking was too great a work for one volume. If intended for students, the book is too much of a compend to be of value, and if the book was written for practitioners its value as a reference work is spoilt by so many empiric statements.

In the chapter on wounds the author emphasizes the danger of scrubbing the wound and the advantage of the immediate use of iodin. The chapter on shock is too short, and the cause of this condition given, as that contained in Crile's original exhaustion and inhibition theory.

In the chapter on dislocation the writer makes a most remarkable statement, the truth of which may be difficult to prove by any scientific means: "Chloroform should never be used for this purpose" (reduction of dislocation), "because a dislocation or fractured bone seems to lose resistance to the drug, even as pregnancy confers an immunity upon it" (page 165).

On page 167 the writer states, under the heading of "Dislocation of the Lower Jaw": "Variety: Forward unilateral, the commonest form." A little further he says: "Bilateral forms are very rare." This is absolutely at variance with such authors as Stimson, Preston and Cotton. Stimson, quoting Malgaigne, gives the proportion of bilateral and unilateral as five to two. On page 170 the wrong legend appears under figures 140-142. In the chapter on fractures we notice that the repair of fractures is given in the old stereotyped way.

We might easily take exception to the treatment advised for burns. The author advises iodin one-half strength. Picric acid, two per cent, he mentions only to condemn its use. The established use of picric acid in the treatment of burns should need no defense.

Artificial respiration is inadequately taken up; the Schaffer method is "indicated by diagrams" only.

The use of many of the Murphy Clinic illustrations help to make the book attractive.

Isidore Cohn.

PUBLICATIONS RECEIVED

LEA & FEBIGER, Philadelphia and New York, 1917.

Diseases of Children, by George M. Tuttle, M. D., and Phelps G. Hurford, M. D. Third edition, thoroughly revised and enlarged.

Eye, Ear, Nose and Throat, by Howard Charles Ballenger, M. D., and A. G. Wippern, M. D. New second edition, thoroughly revised.

P. BLAKISTON'S SON & CO., Philadelphia, 1917.

Acute Poliomyelitis, by George Draper, M. D., with a foreword by Simon Flexner.

Potter's Compend of Materia Medica, Therapeutics and Prescription Writing. Based on the ninth revision of the U. S. Pharmacopœia, including many unofficial remedies. By A. D. Bush, B. S., M. D. Eighth edition, revised.

W. B. SAUNDERS COMPANY, Philadelphia and London, 1917.

The Surgical Clinics of Chicago. April, 1917. Vol. 1, No. 2.

The Medical Clinics of Chicago. May, 1917. Vol. 2, No. 6. Index number.

WM. WOOD & CO., New York, 1917.

Diseases of the Stomach, by Max Einhorn, M. D. Sixth revised and enlarged edition.

G. P. PUTNAM'S SONS, New York and London, 1917 (The Knickerbocker Press).

The Adventure of Death, by Robert W. Mackenna, M. A., M. D.

C. V. MOSBY COMPANY, St. Louis, 1917.

Impotency, Sterility and Artificial Impregnation, by Frank P. Davis, M. D.

F. A. DAVIS COMPANY, Philadelphia and London, 1917.

Handbook of Anatomy, by James K. Young, M. D., F. A. C. S.

THE YEAR-BOOK PUBLISHERS, Chicago, 1917.

The Practical Medicine Series. Vol. 11: **General Surgery.** Edited by Albert J. Ochsner, M. D., F. R. M. S., LL.D., F. A. C. S. Series 1917.

WASHINGTON GOVERNMENT PRINTING OFFICE, Washington, D. C., 1917.

Public Health Reports. Vol. 32, Nos. 17, 18, 19, 20, 21 and 22.

Preliminary Statement to the Press of the United States.

Report of the Health Department of the Panama Canal, March, 1917.

Mortality Statistics (1915). Sixteenth Annual Report. Bureau of Census.

REPRINTS.

The Intermediate Host of Schistosomum Mansoni in Venezuela, by Dr. Juan Iturbe.

A Plea and a Plan for the Eradication of Malaria Throughout the Western Hemisphere, by Frederick L. Hoffman, LL.D.

Classification and Arrangement of Books in the Library of the Surgeon General's Office, by Champe Carter McCulloch, A. M., M. D.

The Surgeon General's Library, by Lieut.-Col. C. C. McCulloch, Jr.

MORTUARY REPORT OF NEW ORLEANS.

Computed from the Monthly Report of the Board of Health of the City of New Orleans, for May, 1917.

CAUSE.	*White.*	*Colored.*	*Total.*
Typhoid Fever	4	1	5
Intermittent Fever (Malarial Cachexia)	------	2	2
Smallpox	------	------	------
Measles	1	------	1
Scarlet Fever	------	------	------
Whooping Cough	------	------	------
Diphtheria and Croup	------	1	1
Influenza	------	8	8
Cholera Nostras	------	------	------
Pyemia and Septicemia	------	------	------
Tuberculosis	51	50	101
Cancer	24	6	30
Rheumatism and Gout	2	1	3
Diabetes	2	2	4
Alcoholism	------	1	1
Encephalitis and Meningitis	------	2	2
Locomotor Ataxia	1	------	1
Congestion, Hemorrhage and Softening of Brain	12	17	29
Paralysis	4	1	5
Convulsions of Infancy	2	------	2
Other Diseases of Infancy	8	5	13
Tetanus	------	2	2
Other Nervous Diseases	2	------	2
Heart Diseases	57	58	115
Bronchitis	3	3	6
Pneumonia and Broncho-Pneumonia	20	21	41
Other Respiratory Diseases	2	1	3
Ulcer of Stomach	------	------	------
Other Diseases of the Stomach	1	2	3
Diarrhea, Dysentery and Enteritis	30	37	67
Hernia, Intestinal Obstruction	5	5	10
Cirrhosis of Liver	7	1	8
Other Diseases of the Liver	3	1	4
Simple Peritonitis	------	------	------
Appendicitis	2	------	2
Bright's Disease	28	20	48
Other Genito-Urinary Diseases	12	7	19
Puerperal Diseases	3	2	5
Senile Debility	1	1	2
Suicide	6	------	6
Injuries	19	13	32
All Other Causes	21	15	36
TOTAL	333	286	619

Still-born—White, 18; colored, 14; total, 32.

Population of City (estimated)—White, 276,000; colored, 102,000; total, 378,000.

Death Rate per 1000 per annum for Month—White, 14.48; colored, 33.65; total, 19.65. Non residents excluded, 18.75.

METEOROLOGIC SUMMARY (U. S. Weather Bureau).

Mean atmospheric pressure. 29.98

Mean temperature. 72

Total precipitation. . . . . 1.63 inches

Prevailing direction of wind, northeast.